

REPORT No. 378

COMPARISON OF FULL-SCALE PROPELLERS HAVING R. A. F.-6 AND CLARK Y AIRFOIL SECTIONS

BY HUGH B. FREEMAN

SUMMARY

In this report, the efficiencies of two series of propellers having two types of blade sections are compared. Six full-scale propellers were used, three having R. A. F.-6 and three Clark Y airfoil sections with thickness/chord ratios of 0.06, 0.08, and 0.10. The propellers were tested at five pitch settings, which covered the range ordinarily used in practice. These tests were conducted in the Propeller Research Tunnel of the National Advisory Committee for Aeronautics.

The propellers having the Clark Y sections gave the highest peak efficiency at the low pitch settings. At the higher pitch settings, the propellers with the R. A. F.-6 sections gave about the same maximum efficiency as the Clark Y propellers and were more efficient for the conditions of climb and take-off.

INTRODUCTION

The airfoil sections most commonly used in this country in propeller design are the R. A. F.-6 and Clark Y. The following tests, which were made incidental to some high tip speed propeller tests (Reference 1) in the Twenty-Foot Propeller Research Tunnel of the National Advisory Committee for Aeronautics, afford an interesting comparison of these airfoil sections as shown by the performance of full-scale propellers.

Six propellers were used in this investigation, three with R. A. F.-6 and three with Clark Y sections. The propellers of each group had thickness/chord ratios of 0.06, 0.08, and 0.10. The airfoil sections used on these propellers are not, strictly speaking, Clark Y or R. A. F.-6 sections but are modifications of these. However, in this report for the sake of convenience, they will be referred to simply as Clark Y and R. A. F.-6 sections.

APPARATUS AND TESTS

The Propeller Research Tunnel and its test equipment have been described in Reference 2. The propellers were driven by a 435-horsepower Curtiss D-12 engine, mounted in an open-cockpit tractor body as shown in Figure 1.

Six metal adjustable blade propellers, 9 $\frac{1}{2}$ feet in diameter, were used in these tests. Three propellers have Clark Y and three R. A. F.-6 sections (Fig. 2). The outer third of all the propeller blades have sections of constant thickness/chord ratio. This ratio is used to designate the propellers as shown in the following table:

| Propeller designation | | |
|-----------------------|------------|-----------------------|
| Clark Y | R. A. F.-6 | Thickness/chord ratio |
| C-6 | R-6 | 0.06 |
| C-8 | R-8 | .08 |
| C-10 | R-10 | .10 |

All of the propellers have the same pitch distribution and blade form. Figure 3 shows the blade-form curves and Figure 4, the pitch distribution along the radius. It may be noted that for each R. A. F.-6 propeller there was a Clark Y propeller the same in every respect except in the type of airfoil section used, so that these tests afford a direct comparison of the two types of airfoils.

Each of the propellers was tested at five pitch settings (11° , 15° , 19° , 23° , and 27° at 42 inches radius) covering the range ordinarily used in practice, making a total of 30 complete tests.

A detailed description of such propeller tests is given in Reference 2.

RESULTS AND DISCUSSION

The observed data and the computed nondimensional coefficients of thrust, power, and efficiency are presented in Tables I, II, and III for the R. A. F.-6 propellers and in Tables IV, V, and VI for the Clark Y propellers. These coefficients are defined as follows:

$$\text{Thrust coefficient} = C_T = \frac{\text{effective thrust}}{\rho n^2 D^4}$$

$$\text{Power coefficient} = C_P = \frac{\text{input power}}{\rho n^3 D^5}$$

$$\text{Propulsive efficiency} = \eta = \frac{\text{effective thrust} \times \text{velocity of advance}}{\text{Input power}}$$

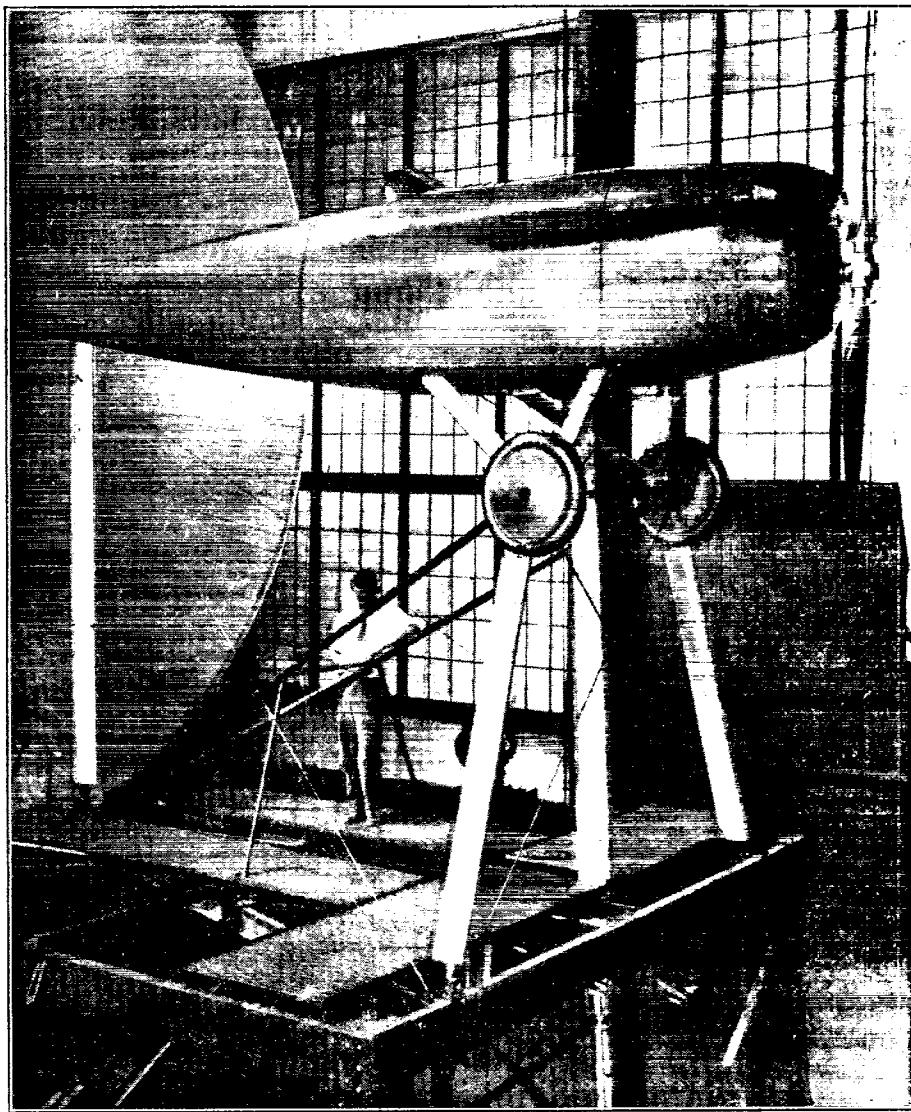
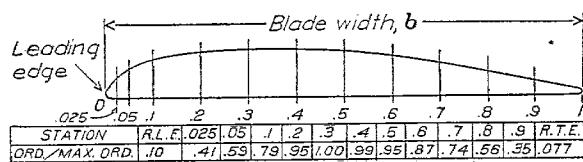
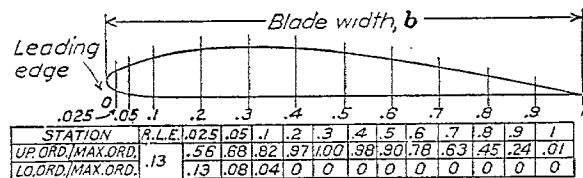


FIGURE 1.—Set-up in Propeller Research Tunnel for propeller tests

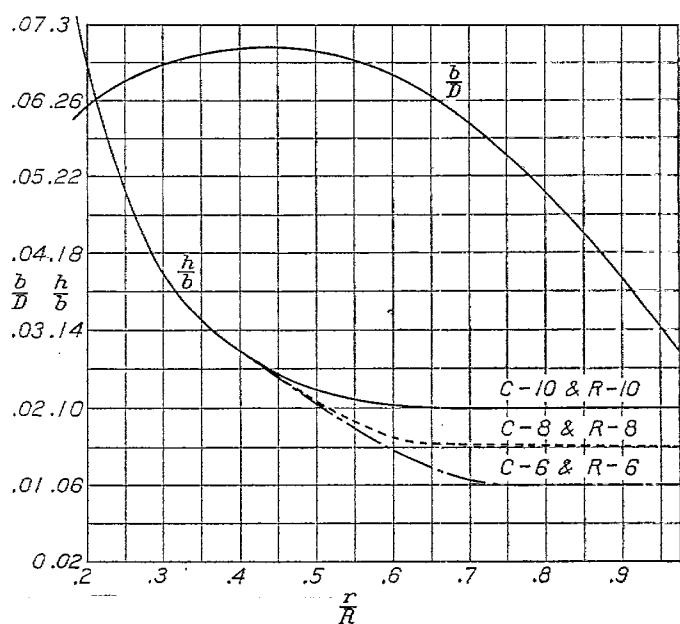


Standard propeller section based on R.A.F.-6



Propeller section based on Clark -Y

FIGURE 2.—Profiles and ordinates of the Clark Y and R. A. F.-6 sections

FIGURE 3.—Blade form curves; b =blade width, D =propeller diameter, h =maximum blade thickness, r =section radius, R =propeller radius

when the effective thrust = actual thrust (or tension in crank-shaft) minus drag due to the slipstream, and

ρ = mass density of the air.

n = revolutions per unit time.

D = diameter of the propeller.

Representative curves showing the coefficients plotted against V/nD for the thinnest Clark Y propeller are given in Figures 5, 6, 7, 8, and 9. From faired curves such as these, values in the Tables I-A, II-A, and III-A for the R. A. F.-6 propellers and IV-A, V-A, and VI-A for the Clark Y propellers were derived, and the corresponding values of the speed power coefficient C_s computed. This coefficient is defined as:

$$C_s = \sqrt[5]{\frac{\rho V^5}{P n^2}}$$

where V is the velocity of advance and P is the power absorbed by the propeller. Propellers operating at the same value of C_s are fulfilling like requirements of power, velocity, and revolutions, and are therefore on a fair basis for comparison. Figures 10, 11, and 12 show the efficiency plotted as ordinates against the values of C_s . In order to avoid confusion, only the curves for three pitch settings were drawn.

The thrust, power, and efficiency of the propellers of the same thickness/chord ratio at the five pitch settings are compared in Figures 13 a, b, c, 14 a, b, c, and 15 a, b, c.

The thrust curves show two marked characteristics; namely, the close agreement of the curves at high values of V/nD and the falling off of thrust of the Clark Y propellers at the low values of V/nD , i. e., high angles of attack, at the high-pitch settings.

The power curves, except for the thin propellers, show that the Clark Y sections absorb less power at the high values of V/nD than the R. A. F.-6. This results in the Clark Y propellers having a higher maximum efficiency. This is especially marked at the low-pitch settings, being 10 per cent for thickness/chord ratio 0.08 at 11°. At the higher pitch settings, the difference in maximum efficiency is small. The V/nD of maximum efficiency is higher for the Clark Y propellers than for the R. A. F.-6 as was to be expected, since the maximum (L/D) of the Clark Y section occurs at a lower angle of attack. For the thin propellers, the maximum efficiency is approximately the same at the high-pitch settings, and the Clark Y is only 3 per cent more efficient at the lowest pitch setting. However, if the peak efficiencies are compared for equal values of the speed power coefficient, there is less difference than the above comparison would lead one to expect. Figure 16 shows that for the thin propellers, operating at the same C_s , the R. A. F.-6 sections give the same maximum efficiency as the Clark Y for all pitch settings. For the thicker propellers, the Clark Y sections give a higher efficiency for low-pitch settings, but are the same as the R. A. F.-6 for high-pitch settings.

Referring to Figures 13, 14, and 15, for low values of V/nD at the high-pitch settings, the R. A. F.-6 propellers absorb less power than the Clark Y, and give a

greater thrust, and consequently a higher efficiency. This is of considerable importance for the condition of climb and take-off in a high-speed airplane, especially in the case of a seaplane where a high thrust-horse-power is required in taking off the water.

In Figure 17, the maximum efficiencies are plotted against C_s to show the effect of varying the thickness of propeller blades. The effect is small, but the R. A. F.-6 propeller shows a small decrease in peak efficiency with increasing blade thickness at the lower pitch settings. It is interesting to note, however, that this is not the case with the Clark Y propellers. Here the thicker sections actually give a higher efficiency, although the difference is very slight.

CONCLUSIONS

- On low-pitch propellers, the Clark Y sections give a higher peak efficiency than the R. A. F.-6 sections.

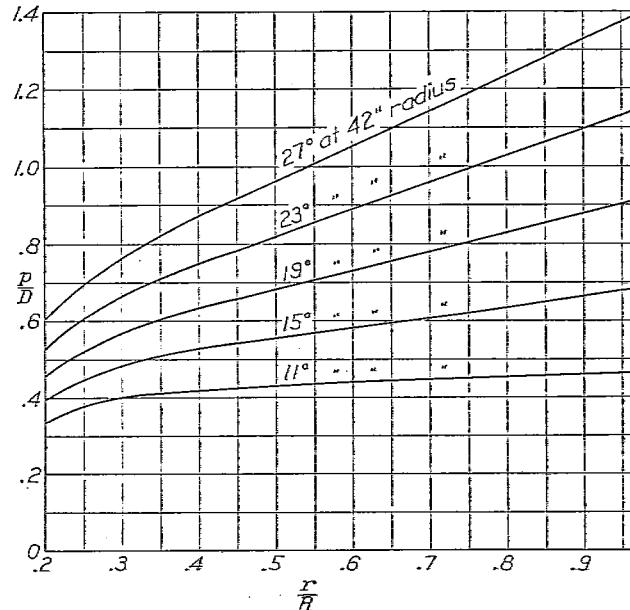


FIGURE 4.—Pitch distribution

- On high-pitch propellers, however, the R. A. F.-6 sections give about the same peak efficiency and are more efficient than the Clark Y sections for the conditions of climb and take-off.

- The maximum efficiency of low-pitch propellers with R. A. F.-6 sections decreases slightly with increasing blade thickness; but with Clark Y sections the efficiency increases slightly with increasing thickness.

LANGLEY MEMORIAL AERONAUTICAL LABORATORY,
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS,
LANGLEY FIELD, VA., October 8, 1930.

REFERENCES

- Wood, Donald H.: Full-Scale Tests of Metal Propellers at High Tip Speed. N. A. C. A. Technical Report No. 375, 1930.
- Weick, Fred E., and Wood, Donald H.: The Twenty-Foot Propeller Research Tunnel of the National Advisory Committee for Aeronautics. N. A. C. A. Technical Report No. 300, 1928.

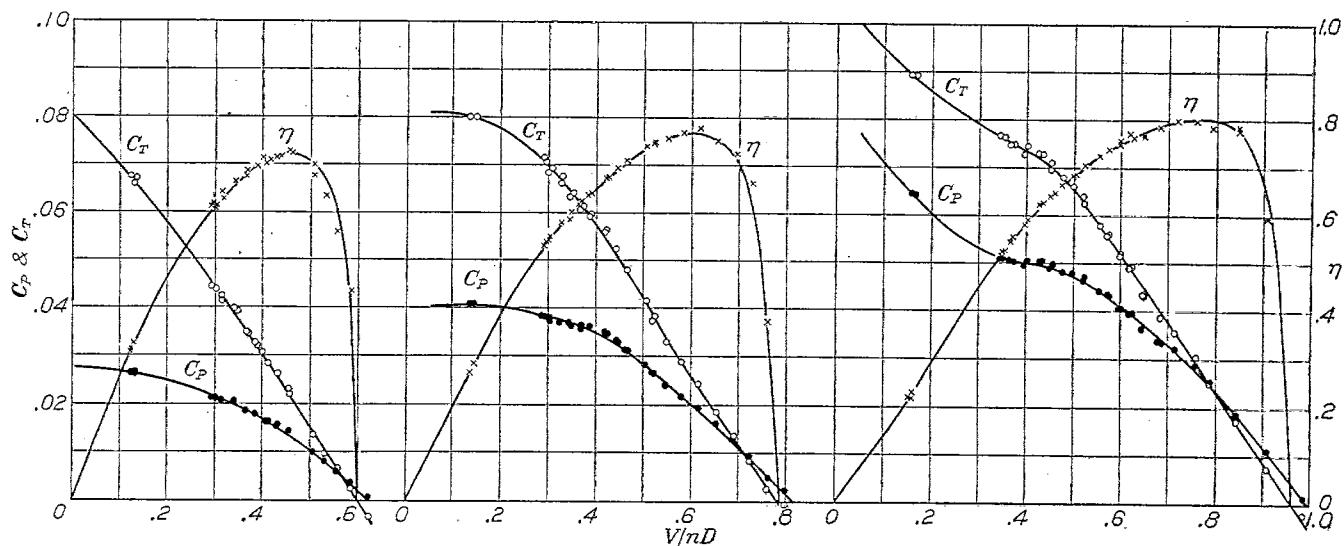


FIGURE 5.—Characteristics of propeller C-6; 11° at 42"

FIGURE 6.—Characteristics of propeller C-6; 15° at 42"

FIGURE 7.—Characteristics of propeller C-6; 19° at 42"

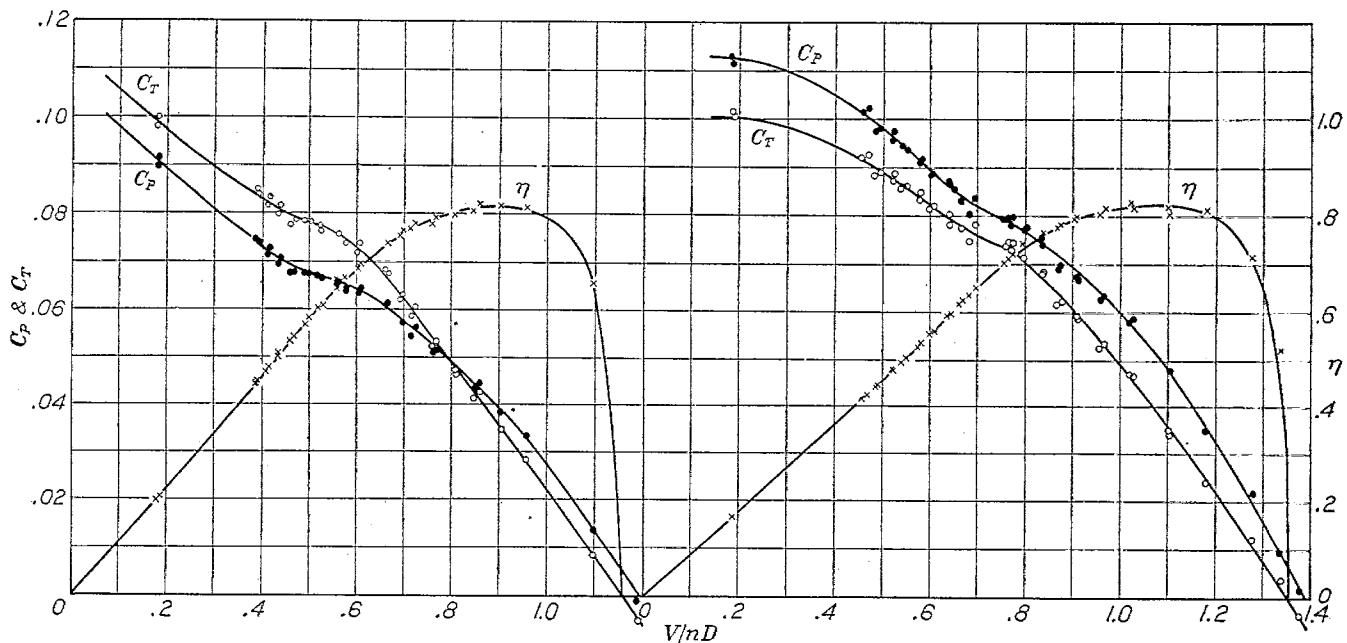


FIGURE 8.—Characteristics of propeller C-6; 23° at 42"

FIGURE 9.—Characteristics of propeller C-6; 27° at 42"

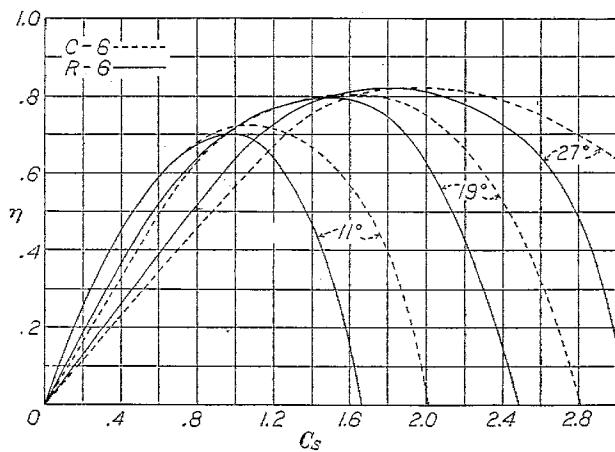


FIGURE 10.—Efficiency vs. speed power coefficient

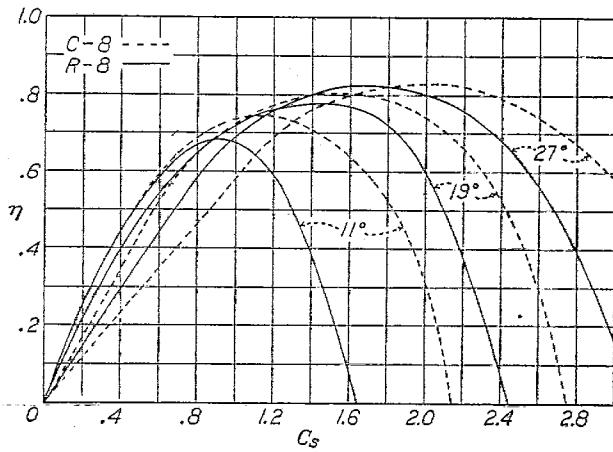


FIGURE 11.—Efficiency vs. speed power coefficient

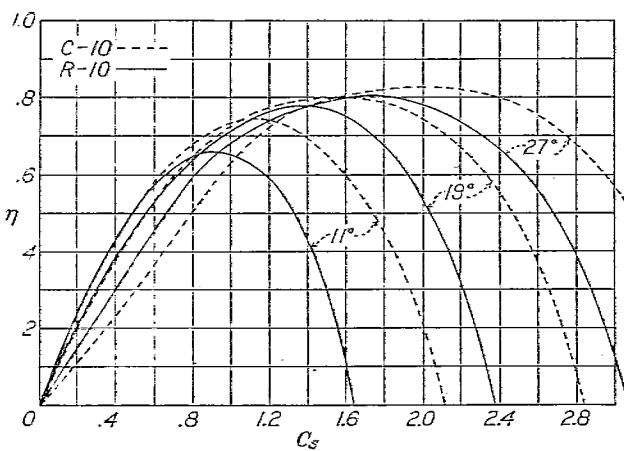


FIGURE 12.—Efficiency vs. speed power coefficient

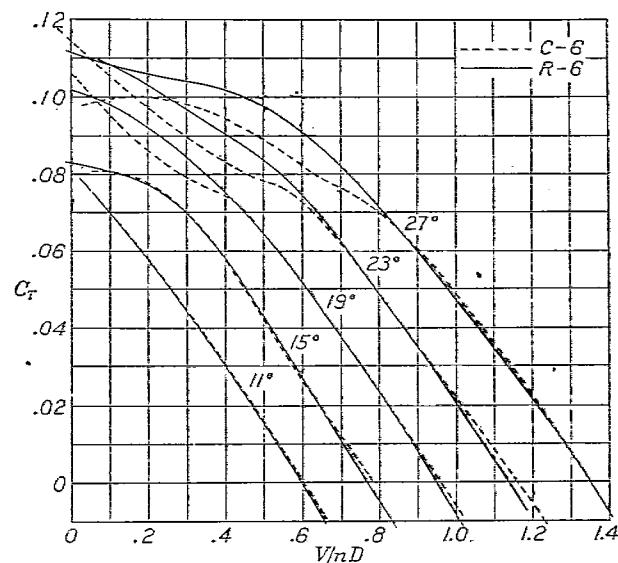


FIGURE 13a.—Thrust coefficients

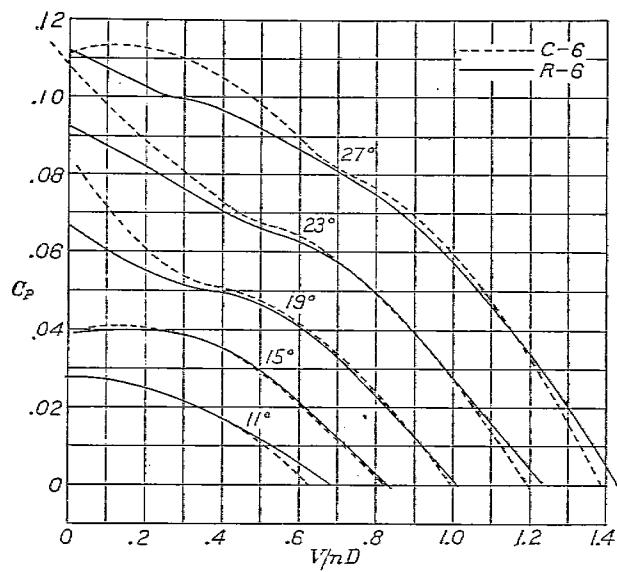


FIGURE 13b.—Power coefficients

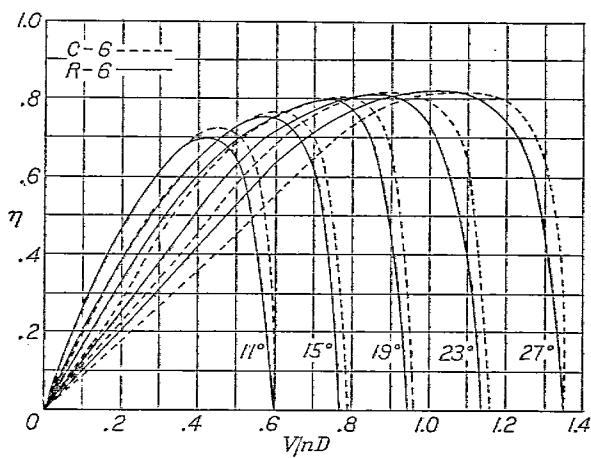


FIGURE 13c.—Efficiency

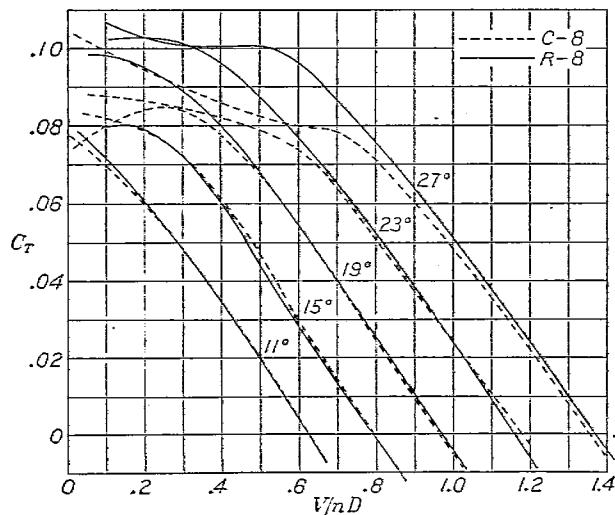


FIGURE 14a.—Thrust coefficients

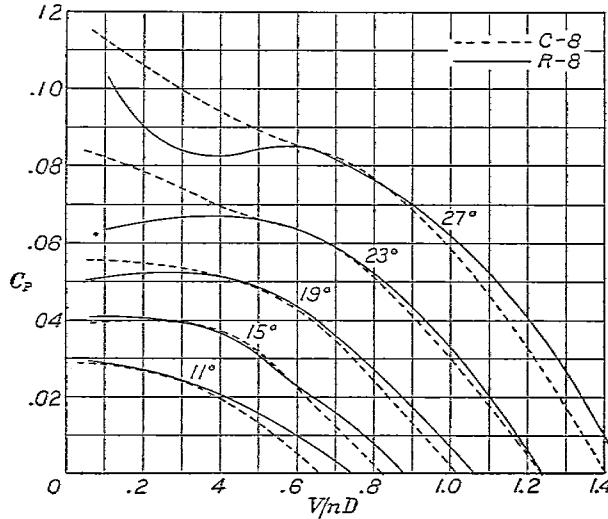


FIGURE 14b.—Power coefficients

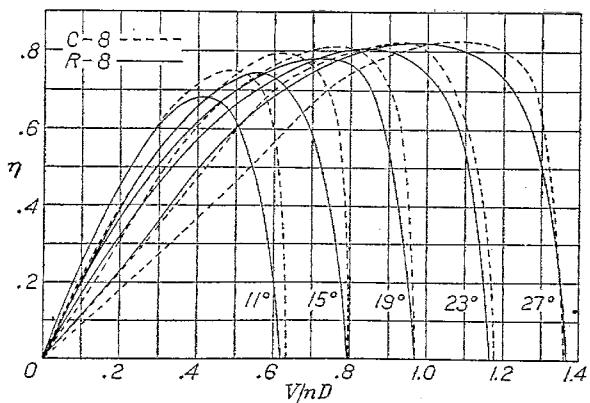


FIGURE 14c.—Efficiency

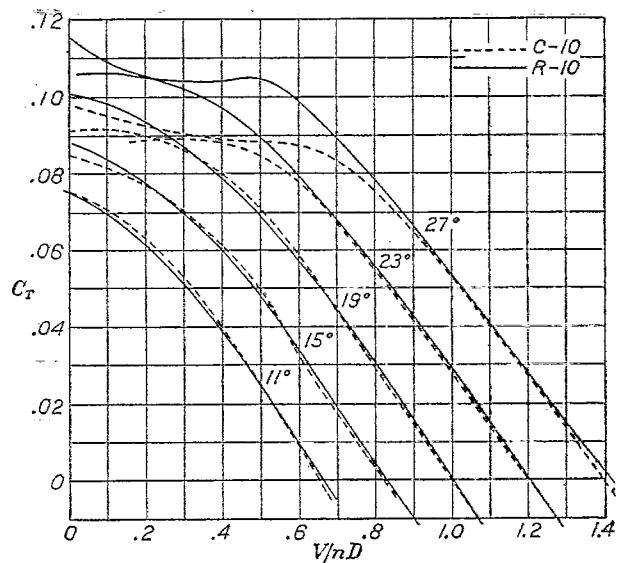


FIGURE 15a.—Thrust coefficients

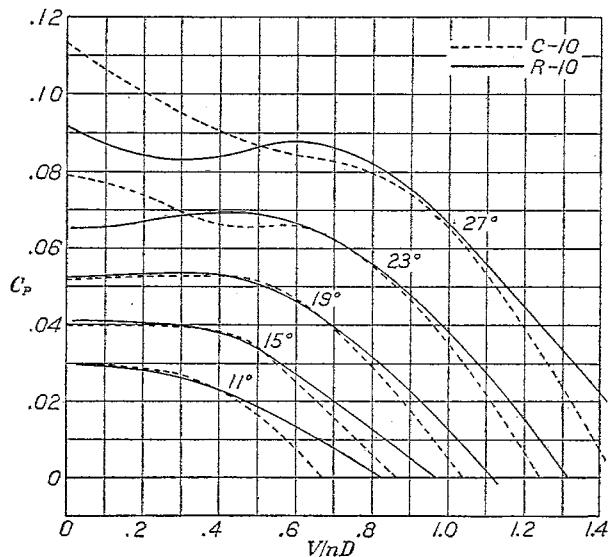


FIGURE 15b.—Power coefficients

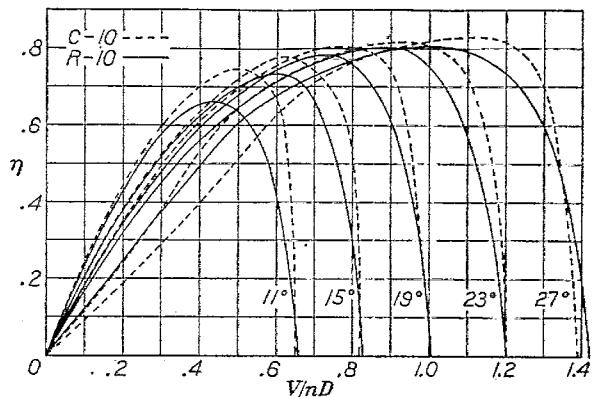


FIGURE 15c.—Efficiency

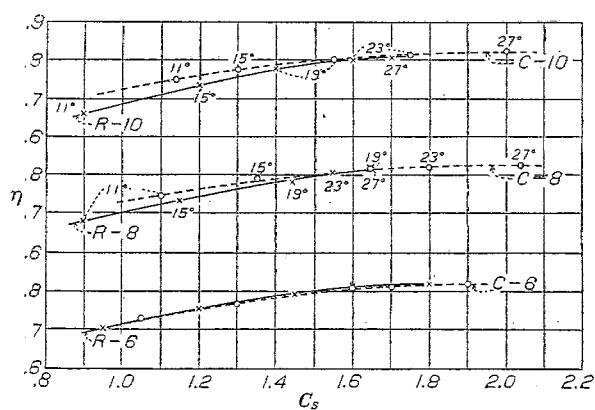


FIGURE 16.—Maximum efficiency vs. speed power coefficients

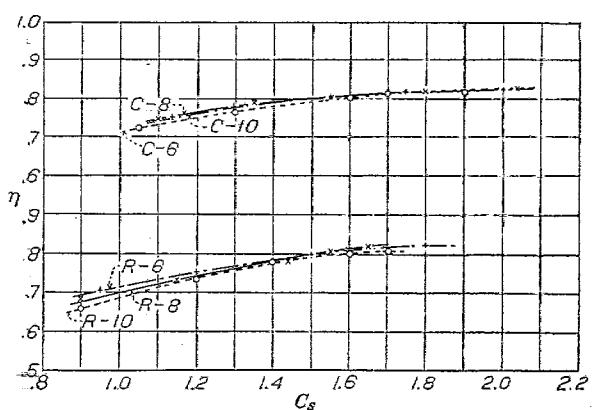


FIGURE 17.—Maximum efficiency vs. speed power coefficients

TABLE I
OBSERVED DATA
PROPELLER R-6

11° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> <i>nD</i> | η |
|----------|--------------------|--------|---------------------|-----------------|----------------------|----------------------|-----------------------|--------|
| .002240 | 83.8 | 1,900 | 479 | 539 | 0.0294 | 0.0173 | 0.408 | 0.693 |
| .002240 | 84.4 | 1,900 | 481 | 545 | .0298 | .0174 | .411 | .704 |
| .002240 | 87.6 | 1,900 | 454 | 455 | .0265 | .0164 | .427 | .690 |
| .002240 | 88.1 | 1,900 | 454 | 490 | .0268 | .0164 | .429 | .701 |
| .002238 | 93.2 | 1,900 | 420 | 408 | .0223 | .0152 | .454 | .666 |
| .002238 | 92.8 | 1,900 | 420 | 431 | .0236 | .0152 | .452 | .702 |
| .002235 | 103.5 | 1,900 | 331 | 265 | .0145 | .0120 | .504 | .610 |
| .002235 | 103.2 | 1,900 | 335 | 276 | .0151 | .0122 | .503 | .625 |
| .002229 | 103.3 | 1,800 | 257 | 170 | .0104 | .0104 | .531 | .531 |
| .002227 | 102.5 | 1,700 | 192 | 94 | .0065 | .0087 | .558 | .413 |
| .002227 | 102.4 | 1,600 | 124 | 17 | .0013 | .0064 | .593 | .123 |
| .002227 | 102.1 | 1,500 | 70 | -53 | -.0047 | .0041 | .630 | |
| .002227 | 102.1 | 1,400 | 15 | -113 | -.0114 | .0010 | .675 | |
| .002229 | 78.8 | 1,870 | 478 | 548 | .0311 | .0180 | .390 | .676 |
| .002229 | 78.8 | 1,870 | 475 | 559 | .0317 | .0178 | .390 | .694 |
| .002222 | 74.6 | 1,860 | 506 | 641 | .0367 | .0191 | .371 | .711 |
| .002232 | 75.1 | 1,860 | 507 | 612 | .0350 | .0192 | .374 | .683 |
| .002232 | 69.1 | 1,900 | 573 | 733 | .0402 | .0208 | .337 | .651 |
| .002232 | 69.1 | 1,900 | 570 | 730 | .0400 | .0207 | .337 | .650 |
| .002235 | 65.0 | 1,900 | 588 | 785 | .0430 | .0213 | .317 | .640 |
| .002235 | 65.0 | 1,900 | 587 | 779 | .0427 | .0212 | .317 | .633 |
| .002235 | 60.9 | 1,900 | 614 | 838 | .0459 | .0222 | .297 | .614 |
| .002235 | 60.1 | 1,900 | 617 | 845 | .0463 | .0223 | .293 | .608 |
| .002235 | 56.0 | 1,900 | 630 | 891 | .0488 | .0228 | .273 | .554 |
| .002235 | 55.9 | 1,900 | 630 | 890 | .0488 | .0228 | .272 | .552 |
| .002243 | 25.1 | 1,900 | 731 | 1,229 | .0671 | .0264 | .122 | .311 |
| .002243 | 25.9 | 1,900 | 731 | 1,229 | .0671 | .0264 | .126 | .321 |

15° at 42-inch radius

| 0.002259 | 86.1 | 1,910 | 981 | 1,040 | 0.0558 | 0.0348 | 0.417 | 0.668 |
|----------|-------|-------|-------|-------|--------|--------|-------|-------|
| .002259 | 86.4 | 1,910 | 981 | 1,035 | .0555 | .0345 | .419 | .668 |
| .002256 | 90.2 | 1,900 | 926 | 960 | .0521 | .0332 | .440 | .690 |
| .002256 | 90.2 | 1,900 | 926 | 962 | .0522 | .0332 | .440 | .692 |
| .002256 | 94.8 | 1,900 | 873 | 879 | .0477 | .0313 | .462 | .704 |
| .002256 | 94.7 | 1,900 | 874 | 886 | .0481 | .0313 | .462 | .710 |
| .002242 | 105.6 | 1,900 | 769 | 731 | .0399 | .0277 | .515 | .742 |
| .002242 | 105.5 | 1,900 | 775 | 740 | .0404 | .0281 | .514 | .739 |
| .002235 | 104.6 | 1,800 | 642 | 598 | .0365 | .0259 | .533 | .758 |
| .002235 | 104.6 | 1,800 | 640 | 589 | .0360 | .0258 | .533 | .751 |
| .002235 | 104.2 | 1,700 | 502 | 446 | .0305 | .0227 | .563 | .763 |
| .002235 | 104.4 | 1,700 | 502 | 440 | .0301 | .0227 | .563 | .754 |
| .002235 | 103.7 | 1,600 | 407 | 327 | .0253 | .0208 | .600 | .730 |
| .002235 | 104.2 | 1,600 | 413 | 343 | .0265 | .0211 | .603 | .757 |
| .002235 | 103.7 | 1,505 | 315 | 236 | .0206 | .0182 | .638 | .722 |
| .002235 | 103.4 | 1,405 | 227 | 146 | .0146 | .0151 | .681 | .661 |
| .002235 | 103.4 | 1,310 | 138 | 59 | .0068 | .0105 | .731 | .473 |
| .002235 | 102.5 | 1,200 | 63 | -14 | -.0019 | .0057 | .791 | |
| .002235 | 102.5 | 1,140 | -1 | -75 | -.0114 | -.0010 | .833 | |
| .002247 | 82.1 | 1,910 | 1,019 | 1,096 | .0391 | .0364 | .398 | .646 |
| .002247 | 79.8 | 1,905 | 1,014 | 1,100 | .0596 | .0364 | .388 | .635 |
| .002247 | 76.8 | 1,900 | 1,022 | 1,125 | .0613 | .0368 | .374 | .623 |
| .002247 | 76.2 | 1,900 | 1,022 | 1,128 | .0615 | .0368 | .371 | .620 |
| .002250 | 70.7 | 1,900 | 1,022 | 1,159 | .0630 | .0368 | .345 | .591 |
| .002250 | 70.5 | 1,900 | 1,021 | 1,162 | .0632 | .0368 | .344 | .591 |
| .002250 | 66.0 | 1,880 | 1,022 | 1,200 | .0668 | .0376 | .325 | .578 |
| .002250 | 66.4 | 1,880 | 1,021 | 1,191 | .0663 | .0376 | .327 | .577 |
| .002253 | 61.7 | 1,860 | 1,026 | 1,221 | .0692 | .0354 | .307 | .553 |
| .002253 | 61.0 | 1,860 | 1,023 | 1,216 | .0690 | .0354 | .304 | .546 |
| .002253 | 55.7 | 1,845 | 1,025 | 1,250 | .0721 | .0391 | .280 | .516 |
| .002253 | 57.6 | 1,850 | 1,022 | 1,239 | .0711 | .0357 | .283 | .529 |
| .002259 | 26.2 | 1,840 | 1,029 | 1,373 | .0796 | .0394 | .132 | .266 |
| .002259 | 26.8 | 1,840 | 1,028 | 1,370 | .0794 | .0393 | .135 | .272 |

TABLE I—Continued

OBSERVED DATA—Continued
PROPELLER R-6—Continued

19° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> <i>nD</i> | η |
|----------|--------------------|--------|---------------------|-----------------|----------------------|----------------------|-----------------------|--------|
| 0.002243 | 84.3 | 1,670 | 1,033 | 977 | 0.0690 | 0.0453 | 0.467 | 0.667 |
| .002243 | 84.2 | 1,670 | 1,029 | 976 | .0690 | .0450 | .467 | .671 |
| .002243 | 89.2 | 1,690 | 1,033 | 956 | .0659 | .0472 | .459 | .683 |
| .002243 | 88.8 | 1,685 | 1,030 | 954 | .0662 | .0473 | .458 | .683 |
| .002240 | 94.5 | 1,700 | 1,030 | 928 | .0634 | .0466 | .515 | .701 |
| .002240 | 93.7 | 1,700 | 1,030 | 932 | .0636 | .0466 | .510 | .696 |
| .002229 | 104.3 | 1,750 | 1,029 | 991 | .0577 | .0441 | .552 | .722 |
| .002229 | 104.3 | 1,745 | 1,026 | 888 | .0578 | .0442 | .553 | .723 |
| .002229 | 104.1 | 1,660 | 889 | 762 | .0547 | .0423 | .581 | .751 |
| .002229 | 104.1 | 1,660 | 889 | 759 | .0545 | .0423 | .581 | .748 |
| .002222 | 103.5 | 1,590 | 783 | 660 | .0519 | .0407 | .603 | .769 |
| .002222 | 103.4 | 1,590 | 783 | 651 | .0512 | .0407 | .602 | .757 |
| .002222 | 103.6 | 1,510 | 650 | 522 | .0455 | .0376 | .635 | .768 |
| .002222 | 103.6 | 1,510 | 653 | 524 | .0457 | .0377 | .633 | .770 |
| .002222 | 103.4 | 1,430 | 555 | 434 | .0421 | .0358 | .670 | .788 |
| .002222 | 103.4 | 1,430 | 555 | 433 | .0420 | .0357 | .670 | .788 |
| .002222 | 103.3 | 1,355 | 451 | 335 | .0363 | .0323 | .706 | .794 |
| .002222 | 103.0 | 1,355 | 451 | 335 | .0366 | .0323 | .704 | .798 |
| .002222 | 103.0 | 1,280 | 359 | 251 | .0305 | .0288 | .745 | .759 |
| .002222 | 103.0 | 1,210 | 279 | 183 | .0249 | .0251 | .788 | .782 |
| .002214 | 102.5 | 1,140 | 197 | 114 | .0175 | .0200 | .833 | .729 |
| .002214 | 102.0 | 1,055 | 116 | 45 | .0081 | .0137 | .895 | .526 |
| .002214 | 102.5 | 980 | 38 | -16 | -.0033 | .0052 | .969 | |
| .002214 | 102.5 | 945 | 15 | -34 | -.0076 | .0022 | 1.005 | |
| .002223 | 81.1 | 1,670 | 1,030 | 996 | .0710 | .0452 | .450 | .657 |
| .002223 | 80.2 | 1,660 | 1,026 | 993 | .0715 | .0459 | .447 | .654 |
| .002226 | 75.1 | 1,660 | 1,029 | 1,016 | .0731 | .0490 | .419 | .625 |
| .002226 | 74.5 | 1,650 | 1,028 | 1,015 | .0741 | .0496 | .418 | .624 |
| .002226 | 69.5 | 1,650 | 1,028 | 1,008 | .0759 | .0496 | .390 | .597 |
| .002226 | 69.4 | 1,645 | 1,028 | 1,004 | .0755 | .0496 | .389 | .592 |
| .002229 | 65.3 | 1,645 | 1,030 | 1,062 | .0777 | .0500 | .368 | .572 |
| .002229 | 65.2 | 1,640 | 1,029 | 1,062 | .0753 | .0503 | .368 | .573 |
| .002229 | 61.2 | 1,630 | 1,032 | 1,085 | .0809 | .0509 | .348 | .553 |
| .002229 | 60.2 | 1,630 | 1,029 | 1,057 | .0811 | .0507 | .342 | .547 |
| .002229 | 57.7 | 1,630 | 1,032 | 1,105 | .0824 | .0509 | .328 | .531 |
| .002229 | 56.2 | 1,630 | 1,029 | 1,106 | .0834 | .0507 | .319 | .518 |
| .002223 | 24.4 | 1,470 | 1,024 | 1,033 | .0944 | .0619 | .154 | .234 |
| .002223 | 26.5 | 1,450 | 1,024 | 1,036 | .0934 | .0612 | .166 | .233 |

23° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> <i>nD</i> | η |
|----------|--------------------|--------|---------------------|-----------------|----------------------|----------------------|-----------------------|--------|
| 0.002227 | 84.3 | 1,440 | 1,010 | 833 | 0.0799 | 0.0633 | 0.542 | 0.679 |
| .002227 | 84.0 | 1,440 | 1,010 | 834 | .0800 | .0633 | .540 | .677 |
| .002224 | 87.2 | 1,450 | 1,014 | 823 | .0790 | .0642 | .561 | .691 |
| .002224 | 88.3 | 1,450 | 1,010 | 820 | .0787 | .0639 | .568 | .700 |
| .002217 | 93.9 | 1,455 | 1,015 | 803 | .0755 | .0630 | .593 | .716 |
| .002217 | 93.4 | 1,445 | 1,009 | 801 | .0764 | .0635 | .599 | .721 |
| .002210 | 104.1 | 1,475 | 1,014 | 762 | .0609 | .0615 | .554 | .714 |
| .002210 | 103.9 | 1,475 | 1,010 | 761 | .0639 | .0612 | .552 | .744 |
| .002210 | 103.9 | 1,400 | 854 | 630 | .0643 | .0576 | .587 | .707 |
| .002210 | 103.4 | 1,400 | 853 | 631 | .0646 | .0579 | .584 | .703 |
| .002210 | 102.8 | 1,330 | 755 | 544 | .0 | | | |

TABLE I—Continued
OBSERVED DATA—Continued
PROPELLER R-6—Continued

27° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.-ft. | T' lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|---------|---------------|--------|----------------|-------------|---------|--------|----------------|--------|
| .002217 | 83.4 | 1,280 | 999 | 707 | 0.0861 | 0.0804 | 0.603 | 0.646 |
| .002217 | 83.2 | 1,270 | 997 | 704 | 0.0870 | 0.0814 | .607 | .649 |
| .002209 | 88.8 | 1,280 | 1,002 | 701 | 0.0856 | 0.0808 | .642 | .680 |
| .002209 | 88.2 | 1,280 | 1,002 | 699 | 0.0853 | 0.0808 | .638 | .674 |
| .002208 | 92.5 | 1,280 | 1,003 | 690 | 0.0844 | 0.0812 | .669 | .695 |
| .002206 | 93.2 | 1,280 | 1,001 | 691 | 0.0846 | 0.0809 | .674 | .705 |
| .002203 | 104.1 | 1,300 | 1,004 | 667 | 0.0792 | 0.0789 | .742 | .745 |
| .002203 | 103.5 | 1,300 | 1,001 | 666 | 0.0791 | 0.0785 | .737 | .743 |
| .002197 | 103.3 | 1,240 | 889 | 580 | 0.0759 | 0.0769 | .771 | .761 |
| .002197 | 103.3 | 1,240 | 889 | 583 | 0.0763 | 0.0769 | .771 | .765 |
| .002197 | 102.9 | 1,185 | 792 | 507 | 0.0726 | 0.0751 | .804 | .777 |
| .002197 | 103.3 | 1,190 | 792 | 501 | 0.0712 | 0.0744 | .804 | .769 |
| .002197 | 103.3 | 1,130 | 697 | 431 | 0.0670 | 0.0726 | .847 | .792 |
| .002197 | 102.7 | 1,130 | 694 | 428 | 0.0674 | 0.0723 | .842 | .785 |
| .002197 | 102.4 | 1,060 | 567 | 335 | 0.0600 | 0.0672 | .895 | .799 |
| .002197 | 102.4 | 1,050 | 567 | 335 | 0.0612 | 0.0684 | .903 | .808 |
| .002197 | 101.7 | 1,000 | 468 | 264 | 0.0531 | 0.0623 | .942 | .803 |
| .002197 | 101.7 | 1,000 | 466 | 262 | 0.0527 | 0.0620 | .942 | .801 |
| .002197 | 102.4 | 940 | 376 | 201 | 0.0457 | 0.0566 | 1.008 | .814 |
| .002197 | 102.4 | 940 | 375 | 202 | 0.0460 | 0.0565 | 1.008 | .821 |
| .002189 | 102.1 | 870 | 278 | 135 | 0.0360 | 0.0491 | 1.087 | .797 |
| .002189 | 101.8 | 870 | 275 | 134 | 0.0357 | 0.0485 | 1.083 | .797 |
| .002189 | 102.4 | 810 | 203 | 89 | 0.0274 | 0.0413 | 1.170 | .776 |
| .002189 | 101.6 | 745 | 112 | 38 | 0.0198 | 0.0268 | 1.263 | .649 |
| .002189 | 101.4 | 695 | 46 | 1 | 0.004 | 0.0127 | 1.351 | .044 |
| .002189 | 101.8 | 665 | 9 | -24 | -0.0110 | 0.0027 | 1.418 | - |
| .002198 | 79.1 | 1,225 | 1,000 | 701 | 0.0940 | 0.0885 | .598 | .655 |
| .002198 | 78.5 | 1,230 | 994 | 695 | 0.0924 | 0.0874 | .591 | .625 |
| .002200 | 78.4 | 1,230 | 997 | 700 | 0.0929 | 0.0877 | .560 | .593 |
| .002200 | 74.1 | 1,225 | 997 | 695 | 0.0931 | 0.0885 | .560 | .593 |
| .002200 | 68.6 | 1,200 | 993 | 687 | 0.0958 | 0.0916 | .529 | .553 |
| .002200 | 68.4 | 1,200 | 990 | 686 | 0.0957 | 0.0912 | .528 | .554 |
| .002203 | 64.3 | 1,200 | 997 | 692 | 0.0964 | 0.0919 | .498 | .520 |
| .002203 | 63.5 | 1,200 | 992 | 689 | 0.0960 | 0.0915 | .490 | .514 |
| .002203 | 59.4 | 1,180 | 991 | 689 | 0.0938 | 0.0946 | .406 | .489 |
| .002203 | 58.2 | 1,180 | 989 | 688 | 0.0991 | 0.0942 | .457 | .481 |
| .002206 | 58.4 | 1,170 | 994 | 692 | 0.1013 | 0.0985 | .423 | .444 |
| .002206 | 56.0 | 1,170 | 991 | 692 | 0.1013 | 0.0961 | .443 | .467 |
| .002211 | 22.8 | 1,125 | 991 | 670 | 0.1058 | 0.1034 | .188 | .192 |
| .002211 | 21.8 | 1,125 | 991 | 664 | 0.1049 | 0.1034 | .179 | .182 |

TABLE I-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER R-6

11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0703 | 0.0269 | 0.261 | 0.206 |
| .15 | .0643 | .0262 | .368 | .311 |
| .20 | .0580 | .0249 | .466 | .418 |
| .25 | .0514 | .0235 | .546 | .528 |
| .30 | .0449 | .0220 | .613 | .644 |
| .35 | .0381 | .0200 | .666 | .764 |
| .40 | .0311 | .0179 | .695 | .895 |
| .45 | .0235 | .0152 | .695 | 1.040 |
| .50 | .0155 | .0122 | .635 | 1.207 |
| .55 | .0077 | .0091 | .465 | 1.406 |

15° at 42-inch radius

| | | | | |
|------|--------|--------|-------|-------|
| 0.10 | 0.0805 | 0.0397 | 0.203 | 0.191 |
| .15 | .0787 | .0400 | .295 | .285 |
| .20 | .0768 | .0399 | .335 | .391 |
| .25 | .0740 | .0394 | .470 | .478 |
| .30 | .0692 | .0386 | .537 | .574 |
| .35 | .0637 | .0374 | .596 | .675 |
| .40 | .0580 | .0358 | .649 | .778 |
| .45 | .0503 | .0326 | .693 | .894 |
| .50 | .0426 | .0292 | .730 | 1.012 |
| .55 | .0345 | .0282 | .754 | 1.149 |
| .60 | .0265 | .0212 | .749 | 1.297 |
| .65 | .0186 | .0169 | .715 | 1.472 |
| .70 | .0107 | .0123 | .608 | 1.688 |
| .75 | .0027 | .0077 | .263 | 1.985 |

TABLE I-A—Continued

FINAL ADJUSTED COEFFICIENTS—Continued

PROPELLER R-6—Continued

19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0975 | 0.0609 | 0.160 | 0.175 |
| .15 | .0948 | .0580 | .245 | .266 |
| .20 | .0918 | .0551 | .333 | .357 |
| .25 | .0881 | .0535 | .412 | .450 |
| .30 | .0842 | .0515 | .490 | .543 |
| .35 | .0800 | .0506 | .553 | .637 |
| .40 | .0753 | .0497 | .605 | .729 |
| .45 | .0702 | .0485 | .652 | .825 |
| .50 | .0646 | .0468 | .691 | .923 |
| .55 | .0581 | .0440 | .727 | 1.027 |
| .60 | .0515 | .0409 | .756 | 1.140 |
| .65 | .0445 | .0373 | .777 | 1.255 |
| .70 | .0373 | .0331 | .789 | 1.333 |
| .75 | .0301 | .0284 | .795 | 1.326 |
| .80 | .0228 | .0234 | .779 | 1.694 |
| .85 | .0150 | .0182 | .700 | 1.805 |
| .90 | .0072 | .0130 | .493 | 2.14 |

23° at 42-inch radius

| | | | | |
|------|--------|--------|-------|-------|
| 0.10 | 0.1083 | 0.0873 | 0.124 | 0.163 |
| .15 | .1059 | .0848 | .187 | .246 |
| .20 | .1031 | .0825 | .250 | .330 |
| .25 | .1000 | .0791 | .316 | .416 |
| .30 | .0970 | .0761 | .382 | .503 |
| .35 | .0938 | .0734 | .447 | .590 |
| .40 | .0905 | .0710 | .510 | .679 |
| .45 | .0870 | .0682 | .574 | .769 |
| .50 | .0837 | .0661 | .633 | .800 |
| .55 | .0795 | .0642 | .681 | .933 |
| .60 | .0746 | .0626 | .715 | 1.046 |
| .65 | .0690 | .0602 | .745 | 1.140 |
| .70 | .0625 | .0568 | .770 | 1.244 |
| .75 | .0588 | .0532 | .786 | 1.350 |
| .80 | .0494 | .0489 | .808 | 1.463 |
| .85 | .0422 | .0441 | .811 | 1.587 |
| .90 | .0350 | .0390 | .807 | 1.722 |
| .95 | .0280 | .0336 | .791 | 1.873 |
| 1.00 | .0204 | .0278 | .733 | 2.04 |
| 1.05 | .0130 | .0220 | .620 | 2.25 |
| 1.10 | .0055 | .0162 | .373 | 2.51 |

27° at 42-inch radius

| | | | | |
|------|--------|--------|-------|-------|
| 0.10 | 0.1076 | 0.1076 | 0.100 | 0.156 |
| .15 | .1061 | .1055 | .151 | .235 |
| .20 | .1051 | .1026 | .205 | .315 |
| .25 | .1040 | .1003 | .259 | .397 |
| .30 | .1032 | .0995 | .311 | .477 |
| .35 | .1025 | .0984 | .365 | .558 |
| .40 | .1014 | .0970 | .418 | .638 |
| .45 | .0997 | .0953 | .471 | .722 |
| .50 | .0971 | .0922 | .527 | .806 |
| .55 | .0940 | .0889 | .581 | .893 |
| .60 | .0905 | .0860 | .632 | .982 |
| .65 | .0865 | .0829 | .679 | 1.072 |
| .70 | .0822 | .0805 | .715 | 1.159 |
| .75 | .0777 | .0780 | .748 | 1.250 |
| .80 | .0722 | .0781 | .770 | 1.313 |
| .85 | .0663 | .0714 | .790 | 1.442 |
| .90 | .0600 | .0672 | .803 | 1.545 |
| .95 | .0532 | .0623 | .811 | 1.655 |
| 1.00 | .0468 | .0574 | .815 | 1.778 |
| 1.05 | .0403 | .0518 | .817 | 1.900 |
| 1.10 | .0341 | .0404 | .808 | 2.03 |
| 1.15 | .0280 | .0469 | .787 | 2.18 |
| 1.20 | .0216 | .0349 | .743 | 2.35 |
| 1.25 | .0150 | .0281 | .666 | 2.55 |
| 1.30 | .0030 | .0216 | .481 | 2.80 |

TABLE II
OBSERVED DATA
PROPELLER R-8

11° at 42-inch radius

| ρ | V m. p. h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|---------------|----------|--------------|----------|--------|--------|----------------|--------|
| 0.002263 | 85.0 | 1,900 | 555 | 603 | 0.0326 | 0.0199 | 0.414 | 0.679 |
| .002263 | 84.9 | 1,900 | 558 | 607 | .0328 | .0200 | .414 | .680 |
| .002263 | 83.2 | 1,900 | 527 | 538 | .0291 | .0189 | .430 | .663 |
| .002263 | 87.7 | 1,900 | 526 | 552 | .0299 | .0188 | .427 | .679 |
| .002252 | 93.8 | 1,900 | 492 | 481 | .0262 | .0177 | .457 | .676 |
| .002252 | 92.2 | 1,900 | 496 | 439 | .0266 | .0178 | .454 | .677 |
| .002246 | 104.1 | 1,900 | 422 | 344 | .0157 | .0152 | .507 | .625 |
| .002246 | 103.5 | 1,900 | 422 | 342 | .0156 | .0152 | .504 | .617 |
| .002246 | 103.3 | 1,810 | 337 | 242 | .0145 | .0134 | .528 | .572 |
| .002239 | 102.7 | 1,710 | 265 | 148 | .0100 | .0118 | .556 | .470 |
| .002239 | 102.7 | 1,610 | 203 | 75 | .0057 | .0102 | .590 | .329 |
| .002239 | 102.5 | 1,515 | 138 | 0 | | .0078 | .626 | |
| .002239 | 102.4 | 1,420 | 81 | -65 | -.0063 | .0052 | .668 | |
| .002239 | 102.4 | 1,320 | 21 | -134 | -.0152 | .0016 | .718 | |
| .002239 | 102.3 | 1,290 | 5 | -147 | -.0174 | .0004 | .734 | |
| .002251 | 79.9 | 1,900 | 571 | 636 | .0357 | .0206 | .389 | .674 |
| .002251 | 79.0 | 1,900 | 574 | 662 | .0207 | .385 | .670 | |
| .002251 | 76.2 | 1,900 | 599 | 636 | .0373 | .0216 | .371 | .641 |
| .002251 | 75.7 | 1,900 | 599 | 637 | .0374 | .0216 | .369 | .639 |
| .002254 | 71.1 | 1,900 | 625 | 775 | .0421 | .0224 | .347 | .652 |
| .002254 | 69.5 | 1,900 | 619 | 771 | .0419 | .0222 | .339 | .640 |
| .002254 | 64.3 | 1,890 | 639 | 831 | .0457 | .0232 | .315 | .621 |
| .002254 | 64.7 | 1,895 | 642 | 832 | .0455 | .0232 | .316 | .620 |
| .002254 | 60.5 | 1,900 | 670 | 900 | .0459 | .0241 | .295 | .599 |
| .002254 | 60.8 | 1,900 | 670 | 897 | .0457 | .0241 | .296 | .598 |
| .002257 | 55.7 | 1,900 | 682 | 943 | .0511 | .0245 | .271 | .565 |
| .002257 | 56.2 | 1,900 | 680 | 937 | .0508 | .0244 | .274 | .570 |
| .002263 | 25.9 | 1,900 | 782 | 723 | .0689 | .0250 | .126 | .310 |
| .002263 | 26.0 | 1,908 | 781 | 724 | .0688 | .0258 | .126 | .310 |
| .002232 | 102.9 | 1,870 | 393 | 306 | .0173 | .0147 | .510 | .600 |
| .002232 | 103.2 | 1,725 | 277 | 160 | .0106 | .0122 | .554 | .483 |
| .002232 | 102.4 | 1,600 | 183 | 54 | .0042 | .0094 | .593 | .265 |
| .002232 | 102.6 | 1,490 | 123 | -22 | -.0020 | .0072 | .638 | |
| .002232 | 102.4 | 1,400 | 71 | -81 | -.0082 | .0047 | .677 | |
| .002232 | 101.6 | 1,295 | 17 | -140 | -.0165 | .0013 | .727 | |

15° at 42-inch radius

| ρ | V m. p. h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|---------------|----------|--------------|----------|--------|--------|----------------|--------|
| 0.002274 | 86.9 | 1,900 | 1,014 | 1,054 | 0.0568 | 0.0361 | 0.424 | 0.667 |
| .002274 | 86.1 | 1,900 | 1,014 | 1,053 | -.0567 | .0361 | .420 | .660 |
| .002274 | 90.3 | 1,915 | 1,014 | 1,030 | .0546 | .0356 | .437 | .670 |
| .002274 | 90.3 | 1,910 | 1,014 | 1,028 | .0547 | .0357 | .438 | .671 |
| .002263 | 95.7 | 1,930 | 1,014 | 1,002 | .0525 | .0352 | .459 | .684 |
| .002263 | 95.7 | 1,930 | 1,012 | 1,003 | .0524 | .0351 | .458 | .685 |
| .002253 | 105.1 | 1,920 | 896 | 850 | .0452 | .0316 | .507 | .725 |
| .002253 | 104.6 | 1,920 | 896 | 848 | .0451 | .0318 | .504 | .719 |
| .002253 | 104.3 | 1,880 | 790 | 741 | .0412 | .0290 | .514 | .730 |
| .002253 | 104.3 | 1,860 | 782 | 730 | .0414 | .0293 | .519 | .733 |
| .002245 | 105.7 | 1,805 | 690 | 624 | .0377 | .0276 | .542 | .740 |
| .002245 | 105.4 | 1,805 | 691 | 627 | .0379 | .0277 | .541 | .740 |
| .002245 | 104.5 | 1,710 | 571 | 497 | .0335 | .0254 | .566 | .741 |
| .002245 | 104.4 | 1,705 | 567 | 493 | .0334 | .0254 | .567 | .746 |
| .002245 | 104.5 | 1,630 | 468 | 384 | .0288 | .0229 | .594 | .737 |
| .002245 | 103.4 | 1,530 | 368 | 277 | .0283 | .0205 | .626 | .712 |
| .002245 | 103.3 | 1,405 | 262 | 162 | .0162 | .0173 | .681 | .636 |
| .002245 | 102.8 | 1,315 | 184 | 87 | .0099 | .0139 | .724 | .517 |
| .002245 | 103.3 | 1,190 | 87 | -8 | -.0011 | .0050 | .804 | |
| .002245 | 102.5 | 1,090 | 7 | -83 | -.0137 | .0008 | .871 | |
| .002254 | 81.5 | 1,885 | 1,014 | 1,088 | .0601 | .0370 | .400 | .650 |
| .002254 | 81.3 | 1,885 | 1,012 | 1,081 | .0397 | .0369 | .399 | .646 |
| .002257 | 76.6 | 1,870 | 1,021 | 1,121 | .0627 | .0379 | .379 | .627 |
| .002257 | 76.3 | 1,870 | 1,020 | 1,120 | .0627 | .0378 | .378 | .627 |
| .002257 | 71.0 | 1,845 | 1,025 | 1,162 | .0669 | .0390 | .356 | .611 |
| .002257 | 70.7 | 1,850 | 1,021 | 1,160 | .0664 | .0387 | .354 | .607 |
| .002260 | 66.0 | 1,855 | 1,025 | 1,201 | .0653 | .0335 | .329 | .584 |
| .002260 | 66.0 | 1,850 | 1,025 | 1,197 | .0684 | .0337 | .330 | .583 |
| .002260 | 60.7 | 1,845 | 1,028 | 1,231 | .0708 | .0390 | .305 | .554 |
| .002260 | 60.7 | 1,845 | 1,027 | 1,233 | .0709 | .0390 | .305 | .554 |
| .002263 | 53.3 | 1,835 | 1,028 | 1,247 | .0723 | .0394 | .294 | .539 |
| .002263 | 56.8 | 1,835 | 1,026 | 1,256 | .0728 | .0394 | .287 | .530 |
| .002269 | 26.7 | 1,820 | 1,029 | 1,347 | .0792 | .0401 | .136 | .268 |
| .002269 | 28.2 | 1,820 | 1,028 | 1,355 | .0797 | .0399 | .143 | .286 |

TABLE II—Continued
OBSERVED DATA—Continued
PROPELLER R-8—Continued

19° at 42-inch radius

| ρ | V m. p. h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|---------------|----------|--------------|----------|--------|--------|----------------|--------|
| 0.002251 | 84.3 | 1,660 | 1,029 | 970 | 0.0690 | 0.0435 | 0.470 | 0.669 |
| .002251 | 84.4 | 1,660 | 1,030 | 967 | .0688 | .0436 | .471 | .667 |
| .002251 | 89.1 | 1,660 | 1,029 | 949 | .0675 | .0435 | .497 | .692 |
| .002251 | 89.2 | 1,660 | 1,029 | 942 | .0670 | .0435 | .498 | .688 |
| .002243 | 94.9 | 1,670 | 1,028 | 923 | .0652 | .0430 | .526 | .714 |
| .002243 | 94.4 | 1,670 | 1,028 | 922 | .0651 | .0430 | .523 | .709 |
| .002237 | 103.7 | 1,710 | 1,028 | 850 | .0596 | .0480 | .562 | .728 |
| .002237 | 103.7 | 1,710 | 1,026 | 877 | .0593 | .0483 | .552 | .728 |
| .002230 | 103.7 | 1,660 | 930 | 930 | .0570 | .0443 | .578 | .744 |
| .002230 | 104.1 | 1,660 | 932 | 937 | .0570 | .0444 | .581 | .746 |
| .002230 | 103.4 | 1,550 | 771 | 637 | .0526 | .0422 | .618 | .770 |
| .002230 | 103.5 | 1,560 | 771 | 634 | .0517 | .0415 | .614 | .785 |
| .002230 | 103.3 | 1,480 | 655 | 513 | .0464 | .0392 | .646 | .765 |
| .002230 | 103.1 | 1,400 | 531 | 397 | .0401 | .0356 | .682 | .788 |
| .002230 | 103.1 | 1,390 | 531 | 399 | .0409 | .0360 | .687 | .790 |
| .002230 | 102.5 | 1,320 | 434 | 313 | .0356 | .0326 | .719 | .785 |
| .002230 | 103.3 | 1,315 | 434 | 307 | .0352 | .0330 | .727 | .776 |
| .002230 | 102.7 | 1,210 | 310 | 193 | .0268 | .0278 | .786 | .788 |
| .002230 | 101.9 | 1,080 | 186 | 94 | .0160 | .0209 | .874 | .668 |
| .002230 | 101.6 | 1,000 | 88 | 18 | .0036 | .0115 | .941 | .291 |
| .002230 | 101.6 | 900 | 13 | -44 | -.0108 | .0021 | 1.045 | |
| .002242 | 80.7 | 1,630 | 1,033 | 929 | .0735 | .0505 | .457 | .665 |
| .002242 | 86.9 | 1,420 | 1,008 | 833 | .0813 | .0653 | .567 | .706 |
| .002239 | 89.7 | 1,425 | 1,014 | 819 | .0797 | .0652 | .583 | .713 |
| .002239 | 90.4 | 1,430 | 1,010 | 816 | .0786 | .0646 | .583 | .712 |
| .002232 | 94.2 | 1,440 | 1,013 | 806 | .0771 | .0639 | .606 | .731 |
| .002232 | 94.9 | 1,445 | 1,008 | 799 | .0757 | .0633 | .608 | .727 |
| .002226 | 105.7 | 1,430 | 1,012 | 759 | .0688 | .0606 | .661 | .750 |
| .002226 | 105.2 | 1,475 | 1,007 | 758 | .0690 | .0608 | .661 | .750 |
| .002226 | 104.4 | 1,430 | 908 | 676 | .0655 | .0583 | .676 | .760 |
| .002226 | 104.3 | 1,420 | 899 | 664 | .0653 | .0585 | .680 | .759 |
| .002226 | 103.3 | 1,380 | 832 | 607 | .0683 | .0574 | .693 | .764 |
| .002226 | 104.2 | 1,360 | 830 | 601 | .0645 | .0583 | .710 | .779 |
| .002226 | 102.6 | 1,280 | 697 | 456 | .0589 | .0558 | .742 | .784 |
| .002226 | 103.3 | 1,280 | 695 | 456 | .0589 | .0553 | .747 | .793 |
| .002218 | 102.9 | 1,205 | 587 | 392 | .0538 | .0534 | .790 | .797 |
| .002218 | 102.9 | 1,120 | 459 | 290 | .0461 | .0452 | .851 | .814 |
| .002218 | 103.4 | 1,120 | 456 | 289 | .0459 | .0479 | .855 | .819 |
| .002218 | 102.9 | 1,050 | 344 | 197 | .0356 | .0411 | .907 | .786 |
| .002218 | 102.6 | 980 | 269 | 142 | .0295 | .0369 | .970 | .776 |
| .002218 | 102.3 | 900 | 159 | 67 | .0165 | .0259 | 1.053 | .670 |
| .002218 | 102.1 | 840 | 90 | 21 | .0059 | .0163 | 1.126 | .397 |
| .002218 | 102.1 | 770 | 12 | -32 | -.0108 | .0027 | 1.228 | |
| .002231 | 80.1 | 1,430 | 1,020 | 875 | .0845 | .0655 | .519 | .670 |
| .002231 | 80.7 | 1,420 | 1,014 | 863 | .0847 | .0659 | .526 | .676 |
| .002231 | 76.3 | 1,415 | 1,017 | 856 | .0878 | .0686 | .499 | .688 |
| .002231 | 76.3 | | | | | | | |

TABLE II—Continued
OBSERVED DATA—Continued
PROPELLER R-8—Continued

27° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|---------------|--------|---------------|------------|--------|--------|----------------|--------|
| 0.002235 | 83.8 | 1,250 | 1,005 | 749 | 0.0948 | 0.0840 | 0.621 | 0.701 |
| .002235 | 83.2 | 1,235 | 1,002 | 747 | .0969 | .0860 | .624 | .703 |
| .002232 | 88.1 | 1,240 | 1,003 | 726 | .0934 | .0855 | .658 | .719 |
| .002232 | 88.2 | 1,240 | 1,003 | 726 | .0934 | .0855 | .659 | .720 |
| .002232 | 92.7 | 1,260 | 1,003 | 707 | .0882 | .0829 | .681 | .725 |
| .002232 | 91.7 | 1,260 | 1,000 | 700 | .0873 | .0825 | .674 | .713 |
| .002218 | 103.3 | 1,280 | 1,001 | 669 | .0814 | .0804 | .747 | .756 |
| .002218 | 103.4 | 1,285 | 1,003 | 664 | .0802 | .0803 | .745 | .744 |
| .002218 | 102.6 | 1,205 | 878 | 567 | .0779 | .0788 | .739 | .770 |
| .002218 | 102.7 | 1,200 | 877 | 565 | .0782 | .0801 | .792 | .773 |
| .002218 | 102.8 | 1,120 | 734 | 457 | .0726 | .0772 | .850 | .799 |
| .002218 | 103.4 | 1,120 | 732 | 448 | .0712 | .0769 | .855 | .792 |
| .002218 | 102.7 | 1,045 | 583 | 339 | .0619 | .0704 | .918 | .800 |
| .002218 | 102.6 | 1,045 | 583 | 337 | .0615 | .0704 | .909 | .794 |
| .002218 | 102.7 | 970 | 453 | 249 | .0527 | .0635 | .981 | .814 |
| .002218 | 102.7 | 970 | 452 | 251 | .0532 | .0633 | .981 | .825 |
| .002211 | 102.3 | 900 | 351 | 177 | .0437 | .0573 | 1.053 | .803 |
| .002211 | 102.3 | 900 | 350 | 178 | .0439 | .0571 | 1.053 | .815 |
| .002211 | 101.8 | 825 | 252 | 114 | .0335 | .0490 | 1.143 | .782 |
| .002211 | 101.9 | 750 | 121 | 39 | .0138 | .0284 | 1.258 | |
| .002211 | 102.3 | 685 | 52 | -2 | -.0008 | .0147 | 1.383 | |
| .002211 | 101.6 | 645 | 4 | -28 | -.0135 | .0013 | 1.458 | |
| .002220 | 78.6 | 1,265 | 1,008 | 770 | .0958 | .0832 | .575 | .662 |
| .002220 | 78.2 | 1,255 | 998 | 762 | .0963 | .0836 | .577 | .665 |
| .002223 | 74.6 | 1,250 | 998 | 773 | .0984 | .0841 | .553 | .647 |
| .002223 | 73.3 | 1,240 | 995 | 773 | .0999 | .0851 | .547 | .642 |
| .002223 | 69.4 | 1,240 | 999 | 789 | .1020 | .0855 | .518 | .618 |
| .002223 | 68.6 | 1,245 | 998 | 781 | .1002 | .0848 | .510 | .603 |
| .002223 | 63.6 | 1,245 | 1,001 | 795 | .1019 | .0848 | .473 | .569 |
| .002223 | 63.5 | 1,250 | 997 | 793 | .1009 | .0838 | .470 | .566 |
| .002229 | 59.3 | 1,280 | 1,001 | 808 | .1005 | .0827 | .436 | .580 |
| .002229 | 59.3 | 1,265 | 1,000 | 803 | .0995 | .0822 | .434 | .525 |
| .002229 | 55.6 | 1,265 | 1,003 | 813 | .1008 | .0825 | .407 | .497 |
| .002232 | 54.8 | 1,270 | 1,001 | 810 | .0994 | .0812 | .400 | .490 |
| .002232 | 23.4 | 1,200 | 999 | 749 | .1030 | .0907 | .181 | .205 |
| .002232 | 24.0 | 1,200 | 999 | 745 | .1024 | .0907 | .185 | .209 |

TABLE II-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER R-8

11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0713 | 0.0251 | 0.254 | 0.203 |
| .15 | .0660 | .0275 | .380 | .307 |
| .20 | .0600 | .0265 | .452 | .413 |
| .25 | .0540 | .0254 | .531 | .521 |
| .30 | .0480 | .0240 | .600 | .633 |
| .35 | .0414 | .0220 | .660 | .751 |
| .40 | .0345 | .0202 | .634 | .873 |
| .45 | .0270 | .0180 | .675 | 1.005 |
| .50 | .0190 | .0158 | .630 | 1.150 |
| .55 | .0115 | .0127 | .498 | 1.318 |
| .60 | .0038 | .0097 | .235 | 1.518 |

15° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0795 | 0.0410 | 0.194 | 0.189 |
| .15 | .0808 | .0405 | .300 | .285 |
| .20 | .0700 | .0402 | .392 | .380 |
| .25 | .0755 | .0400 | .473 | .475 |
| .30 | .0715 | .0396 | .542 | .573 |
| .35 | .0665 | .0386 | .602 | .673 |
| .40 | .0600 | .0370 | .650 | .774 |
| .45 | .0530 | .0344 | .693 | .888 |
| .50 | .0450 | .0310 | .725 | 1.00 |
| .55 | .0360 | .0267 | .742 | 1.135 |
| .60 | .0280 | .0230 | .730 | 1.275 |
| .65 | .0205 | .0195 | .685 | 1.425 |
| .70 | .0135 | .0160 | .585 | 1.60 |
| .75 | .0068 | .0123 | .415 | 1.77 |

TABLE II-A—Continued

FINAL ADJUSTED COEFFICIENTS—Continued

PROPELLER R-8—Continued

19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0938 | 0.0515 | 0.190 | 0.181 |
| .15 | .097 | .052 | .280 | .271 |
| .20 | .005 | .0528 | .36 | .360 |
| .25 | .0925 | .0525 | .44 | .462 |
| .30 | .0885 | .0525 | .504 | .542 |
| .35 | .094 | .052 | .565 | .633 |
| .40 | .079 | .0514 | .615 | .725 |
| .45 | .073 | .0500 | .655 | .818 |
| .50 | .0676 | .0487 | .694 | .916 |
| .55 | .0612 | .0465 | .725 | 1.015 |
| .60 | .0543 | .0435 | .75 | 1.122 |
| .65 | .0470 | .0397 | .77 | 1.210 |
| .70 | .0400 | .0360 | .778 | 1.360 |
| .75 | .0327 | .0315 | .778 | 1.50 |
| .80 | .0254 | .0268 | .763 | 1.66 |
| .85 | .0183 | .0216 | .72 | 1.83 |
| .90 | .0108 | .0170 | .575 | 2.03 |

23° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.1020 | 0.0636 | 0.16 | 0.174 |
| .15 | .1028 | .0647 | .242 | .260 |
| .20 | .103 | .0655 | .315 | .345 |
| .25 | .1025 | .0665 | .385 | .430 |
| .30 | .1017 | .067 | .455 | .515 |
| .35 | .0995 | .067 | .52 | .601 |
| .40 | .0965 | .0674 | .672 | .887 |
| .45 | .0923 | .0667 | .622 | .773 |
| .50 | .0875 | .0663 | .66 | .860 |
| .55 | .0825 | .0653 | .695 | .950 |
| .60 | .0770 | .0635 | .728 | 1.04 |
| .65 | .071 | .0612 | .755 | 1.135 |
| .70 | .065 | .0588 | .778 | 1.215 |
| .75 | .0588 | .0558 | .793 | 1.335 |
| .80 | .0530 | .0530 | .802 | 1.410 |
| .85 | .0480 | .0487 | .805 | 1.556 |
| .90 | .0320 | .0440 | .80 | 1.650 |
| .95 | .0317 | .0385 | .781 | 1.820 |
| 1.00 | .025 | .0335 | .745 | 1.970 |
| 1.05 | .0175 | .0270 | .68 | 2.15 |
| 1.10 | .0100 | .0200 | .56 | 2.40 |

27° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.1065 | 0.1035 | 0.103 | 0.157 |
| .15 | .1040 | .095 | .164 | .240 |
| .20 | .1022 | .090 | .227 | .324 |
| .25 | .1010 | .0865 | .292 | .408 |
| .30 | .1002 | .0836 | .360 | .493 |
| .35 | .1002 | .0824 | .426 | .576 |
| .40 | .1005 | .082 | .490 | .660 |
| .45 | .1007 | .0832 | .545 | .740 |
| .50 | .1005 | .0842 | .597 | .822 |
| .55 | .0990 | .0845 | .645 | .903 |
| .60 | .0962 | .085 | .680 | .984 |
| .65 | .0921 | .0837 | .715 | 1.068 |
| .70 | .0865 | .0816 | .743 | 1.156 |
| .75 | .0805 | .0785 | .763 | 1.245 |
| .80 | .0750 | .0703 | .786 | 1.340 |
| .85 | .0690 | .0732 | .802 | 1.432 |
| .90 | .0632 | .070 | .814 | 1.530 |
| .95 | .0570 | .066 | .820 | 1.635 |
| 1.00 | .0510 | .0621 | .820 | 1.740 |
| 1.05 | .0445 | .0575 | .814 | 1.862 |
| 1.10 | .0380 | .0522 | .80 | 1.985 |
| 1.15 | .0317 | .0467 | .78 | 2.130 |
| 1.20 | .0250 | .0407 | .737 | 2.275 |
| 1.25 | .0180 | .0341 | .660 | 2.460 |
| 1.30 | .0109 | .0275 | .520 | 2.660 |
| 1.35 | .0035 | .0200 | .236 | 2.930 |

TABLE III
OBSERVED DATA
PROPELLER R-10

11° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|-------------|--------|--------------|----------|---------|--------|----------------|--------|
| 0.002228 | 84.2 | 1,890 | 634 | 674 | 0.0375 | 0.0233 | 0.413 | 0.665 |
| .002228 | 83.8 | 1,895 | 635 | 683 | 0.0377 | 0.0233 | .409 | .662 |
| .002228 | 88.2 | 1,910 | 624 | 643 | 0.0350 | 0.0226 | .428 | .663 |
| .002228 | 87.7 | 1,910 | 630 | 646 | 0.0351 | 0.0226 | .425 | .660 |
| .002225 | 92.1 | 1,900 | 597 | 580 | 0.0319 | 0.0217 | .449 | .660 |
| .002218 | 92.4 | 1,900 | 597 | 582 | 0.0321 | 0.0218 | .450 | .662 |
| .002215 | 102.5 | 1,900 | 512 | 427 | 0.0236 | 0.0187 | .500 | .631 |
| .002215 | 102.5 | 1,900 | 515 | 428 | 0.0237 | 0.0188 | .500 | .630 |
| .002241 | 77.6 | 1,835 | 638 | 715 | 0.0393 | 0.0231 | .379 | .645 |
| .002241 | 78.1 | 1,890 | 638 | 715 | 0.0395 | 0.0233 | .353 | .649 |
| .002234 | 73.6 | 1,870 | 650 | 760 | 0.0430 | 0.0244 | .364 | .641 |
| .002234 | 73.6 | 1,870 | 651 | 762 | 0.0431 | 0.0244 | .364 | .643 |
| .002219 | 69.9 | 1,900 | 705 | 850 | 0.0469 | 0.0257 | .341 | .622 |
| .002219 | 69.3 | 1,905 | 706 | 853 | 0.0468 | 0.0256 | .337 | .618 |
| .002219 | 63.9 | 1,890 | 711 | 894 | 0.0499 | 0.0262 | .313 | .596 |
| .002219 | 63.9 | 1,895 | 713 | 897 | 0.0498 | 0.0261 | .312 | .595 |
| .002219 | 60.9 | 1,885 | 717 | 925 | 0.0519 | 0.0266 | .299 | .583 |
| .002219 | 60.8 | 1,890 | 718 | 924 | 0.0516 | 0.0265 | .298 | .580 |
| .002221 | 57.7 | 1,895 | 731 | 958 | 0.0531 | 0.0268 | .252 | .559 |
| .002221 | 56.5 | 1,820 | 729 | 965 | 0.0533 | 0.0269 | .277 | .554 |
| .002223 | 24.3 | 1,900 | 783 | 1,224 | 0.0673 | 0.0286 | .121 | .284 |
| .002223 | 27.4 | 1,900 | 790 | 1,223 | 0.0672 | 0.0287 | .134 | .313 |
| .002220 | 103.3 | 1,840 | 452 | 347 | 0.0204 | 0.0176 | .520 | .603 |
| .002220 | 103.2 | 1,835 | 450 | 349 | 0.0206 | 0.0176 | .521 | .610 |
| .002220 | 102.5 | 1,710 | 346 | 228 | 0.0155 | 0.0156 | .555 | .552 |
| .002220 | 102.2 | 1,625 | 286 | 160 | 0.0121 | 0.0143 | .582 | .493 |
| .002220 | 102.2 | 1,475 | 159 | 22 | 0.0020 | 0.0056 | .642 | .134 |
| .002220 | 101.7 | 1,325 | 98 | -63 | -0.0071 | 0.0073 | .711 | ----- |
| .002220 | 101.3 | 1,230 | 55 | -112 | -0.0147 | 0.0048 | .763 | ----- |
| .002220 | 101.3 | 1,140 | 6 | -159 | -0.0244 | 0.0066 | .823 | ----- |

15° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|-------------|--------|--------------|----------|---------|--------|----------------|--------|
| 0.002218 | 84.0 | 1,875 | 1,005 | 1,024 | 0.0550 | 0.0377 | 0.415 | 0.638 |
| .002218 | 84.4 | 1,870 | 1,003 | 1,019 | 0.0560 | 0.0378 | .418 | .641 |
| .002218 | 89.4 | 1,880 | 1,005 | 991 | 0.0559 | 0.0375 | .440 | .656 |
| .002218 | 88.4 | 1,880 | 1,005 | 999 | 0.0564 | 0.0375 | .455 | .654 |
| .002216 | 93.0 | 1,890 | 1,008 | 975 | 0.0545 | 0.0373 | .456 | .666 |
| .002216 | 93.0 | 1,885 | 1,005 | 977 | 0.0549 | 0.0373 | .456 | .671 |
| .002202 | 103.5 | 1,930 | 989 | 915 | 0.0492 | 0.0356 | .497 | .687 |
| .002202 | 104.1 | 1,935 | 999 | 909 | 0.0488 | 0.0354 | .498 | .687 |
| .002202 | 102.8 | 1,830 | 834 | 761 | 0.0456 | 0.0361 | .520 | .717 |
| .002202 | 103.1 | 1,835 | 833 | 763 | 0.0454 | 0.0361 | .520 | .713 |
| .002202 | 102.5 | 1,730 | 673 | 593 | 0.0398 | 0.0299 | .549 | .731 |
| .002202 | 102.3 | 1,730 | 673 | 594 | 0.0399 | 0.0299 | .549 | .731 |
| .002202 | 102.3 | 1,620 | 564 | 471 | 0.0361 | 0.0285 | .585 | .741 |
| .002202 | 102.0 | 1,620 | 562 | 471 | 0.0361 | 0.0284 | .583 | .741 |
| .002195 | 101.9 | 1,520 | 434 | 336 | 0.0293 | 0.0251 | .621 | .725 |
| .002195 | 101.9 | 1,515 | 435 | 336 | 0.0294 | 0.0253 | .623 | .724 |
| .002195 | 101.8 | 1,420 | 353 | 251 | 0.0250 | 0.0234 | .664 | .709 |
| .002195 | 101.6 | 1,415 | 346 | 241 | 0.0243 | 0.0231 | .665 | .700 |
| .002195 | 101.3 | 1,310 | 260 | 149 | 0.0174 | 0.0202 | .723 | .623 |
| .002195 | 101.9 | 1,230 | 176 | 67 | 0.0059 | 0.0155 | .767 | .442 |
| .002195 | 101.6 | 1,105 | 89 | -16 | -0.0026 | 0.0097 | .851 | ----- |
| .002195 | 101.4 | 1,020 | 37 | -65 | -0.0126 | 0.0047 | .921 | ----- |
| .002195 | 100.8 | 950 | 3 | -94 | -0.0197 | 0.0004 | .953 | ----- |
| .002207 | 80.9 | 1,855 | 1,008 | 1,053 | 0.0613 | 0.0388 | .404 | .638 |
| .002207 | 79.5 | 1,855 | 1,006 | 1,049 | 0.0611 | 0.0387 | .397 | .627 |
| .002207 | 74.9 | 1,860 | 1,008 | 1,053 | 0.0627 | 0.0386 | .373 | .606 |
| .002207 | 74.9 | 1,855 | 1,007 | 1,078 | 0.0628 | 0.0388 | .374 | .606 |
| .002209 | 69.9 | 1,850 | 1,009 | 1,108 | 0.0648 | 0.0391 | .350 | .580 |
| .002209 | 69.7 | 1,850 | 1,012 | 1,108 | 0.0648 | 0.0392 | .349 | .577 |
| .002209 | 64.9 | 1,845 | 1,014 | 1,140 | 0.0671 | 0.0394 | .326 | .555 |
| .002209 | 64.9 | 1,850 | 1,014 | 1,155 | 0.0664 | 0.0392 | .325 | .551 |
| .002212 | 61.0 | 1,840 | 1,016 | 1,164 | 0.0656 | 0.0396 | .307 | .532 |
| .002212 | 61.0 | 1,840 | 1,014 | 1,166 | 0.0687 | 0.0395 | .307 | .534 |
| .002212 | 56.9 | 1,830 | 1,016 | 1,197 | 0.0714 | 0.0401 | .288 | .513 |
| .002212 | 56.9 | 1,830 | 1,015 | 1,183 | 0.0706 | 0.0401 | .283 | .507 |
| .002218 | 26.5 | 1,820 | 1,020 | 1,356 | 0.0817 | 0.0406 | .135 | .272 |
| .002218 | 26.9 | 1,810 | 1,017 | 1,343 | 0.0816 | 0.0410 | .138 | .275 |

TABLE III—Continued

OBSERVED DATA—Continued
PROPELLER R-10—Continued

19° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|-------------|--------|--------------|----------|---------|--------|----------------|--------|
| 0.002214 | 84.2 | 1,600 | 1,014 | 935 | 0.0729 | 0.0523 | 0.457 | 0.679 |
| .002214 | 83.5 | 1,610 | 1,016 | 933 | .0719 | .0518 | .450 | .666 |
| .002214 | 89.0 | 1,635 | 1,017 | 913 | .0650 | .0503 | .504 | .681 |
| .002214 | 88.4 | 1,630 | 1,016 | 915 | .0687 | .0505 | .502 | .683 |
| .002210 | 92.1 | 1,630 | 1,016 | 901 | .0678 | .0505 | .523 | .702 |
| .002203 | 92.8 | 1,630 | 1,014 | 893 | .0673 | .0507 | .527 | .699 |
| .002197 | 104.0 | 1,670 | 1,014 | 847 | .0611 | .0484 | .576 | .727 |
| .002197 | 103.4 | 1,670 | 1,012 | 840 | .0606 | .0483 | .574 | .720 |
| .002197 | 103.3 | 1,620 | 909 | 750 | .0576 | .0462 | .591 | .737 |
| .002197 | 104.2 | 1,620 | 908 | 747 | .0574 | .0460 | .596 | .744 |
| .002197 | 103.4 | 1,530 | 775 | 618 | .0531 | .0441 | .626 | .754 |
| .002197 | 103.4 | 1,530 | 775 | 620 | .0533 | .0441 | .626 | .757 |
| .002197 | 102.8 | 1,430 | 494 | 494 | .0456 | .0419 | .666 | .773 |
| .002197 | 103.3 | 1,435 | 494 | 494 | .0452 | .0418 | .667 | .769 |
| .002190 | 103.2 | 1,350 | 533 | 530 | .0432 | .0390 | .708 | .784 |
| .002190 | 103.2 | 1,350 | 534 | 539 | .0431 | .0390 | .708 | .782 |
| .002190 | 102.5 | 1,270 | 440 | 303 | .0379 | .0363 | .747 | .780 |
| .002190 | 102.6 | 1,275 | 439 | 301 | .0374 | .0362 | .745 | .770 |
| .002190 | 103.4 | 1,190 | 340 | 214 | .0305 | .0321 | .805 | .765 |
| .002190 | 102.7 | 1,105 | 247 | 131 | .0217 | .0270 | .861 | .692 |
| .002190 | 102.4 | 1,030 | 170 | 70 | .0133 | .0214 | .921 | .572 |
| .002190 | 101.9 | 930 | 78 | -2 | -0.0004 | .0120 | 1,015 | ----- |
| .002190 | 101.6 | 860 | 16 | -50 | -0.0136 | .0029 | 1,095 | ----- |
| .002201 | 79.4 | 1,610 | 1,020 | 962 | .0746 | .0524 | .457 | .651 |
| .002201 | 79.2 | 1,600 | 1,014 | 961 | .0754 | .0526 | .453 | .656 |
| .002201 | 74.7 | 1,600 | 1,020 | 982 | .0770 | .0530 | .432 | .628 |
| .002201 | 74.7 | 1,600 | 1,016 | 952 | .0770 | .0528 | .432 | .630 |
| .002205 | 69.7 | 1,600 | 1,020 | 1,005 | .0781 | .0529 | .403 | .600 |
| .002205 | 68.8 | 1,600 | 1,018 | 1,007 | .0788 | .0527 | .398 | .595 |
| .002205 | 65.6 | 1,600 | 1,020 | 1,030 | .0806 | .0529 | .380 | .579 |
| .002205 | 65.6 | 1,600 | 1,018 | 1,077 | .0804 | .0527 | .380 | .580 |
| .002207 | 59.7 | 1,600 | 1,020 | 1,059 | .0829 | .0528 | .347 | .545 |
| .002207 | 60.8 | 1,600 | 1,019 | 1,050 | .0821 | .0529 | .350 | .544 |
| .002207 | 58.1 | 1,595 | 1,020 | 1,067 | .0842 | .0531 | .337 | .534 |
| .002207 | 57.8 | 1,590 | 1,020 | 1,068 | .0845 | .0535 | .337 | .532 |
| .002214 | 26.5 | 1,600 | 1,025 | 1,233 | .0961 | .0528 | .153 | .279 |
| .002214 | 27.0 | 1,600 | 1,022 | 1,226 | .0956 | .0526 | .156 | .284 |

23° at 42-inch radius

| ρ | V m.p.h. | r.p.m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|-------------|--------|--------------|----------|--------|--------|----------------|----------|
| 0.002291 | 88.0 | 1,400 | 1,033 | 837 | 0.0824 | 0.0671 | 0.582 | 0.715 |
| .002291 | 85.3 | 1,029 | 838 | 836 | .0829 | .0674 | .586 | .696</td |

TABLE III—Continued
OBSERVED DATA—Continued
PROPELLER R-10—Continued

27° at 42-inch radius

| ρ | V m. p. h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|---------|---------------|----------|--------------|----------|--------|--------|----------------|--------|
| .002278 | 85.3 | 1,230 | 1,021 | 735 | 0.0943 | 0.0865 | 0.642 | 0.700 |
| .002278 | 85.3 | 1,225 | 1,018 | 731 | .0945 | .0873 | .645 | .698 |
| .002278 | 90.2 | 1,230 | 1,020 | 716 | .0918 | .0865 | .679 | .720 |
| .002278 | 89.8 | 1,230 | 1,015 | 710 | .0910 | .0862 | .676 | .714 |
| .002268 | 93.9 | 1,240 | 1,018 | 698 | .0855 | .0852 | .701 | .728 |
| .002268 | 94.7 | 1,230 | 1,012 | 693 | .0863 | .0862 | .713 | .739 |
| .002262 | 105.4 | 1,250 | 1,014 | 653 | .0816 | .0841 | .781 | .758 |
| .002262 | 104.6 | 1,250 | 1,014 | 652 | .0815 | .0841 | .775 | .751 |
| .002262 | 104.2 | 1,200 | 921 | 582 | .0790 | .0829 | .804 | .766 |
| .002254 | 104.4 | 1,205 | 924 | 587 | .0793 | .0825 | .802 | .771 |
| .002254 | 104.4 | 1,140 | 802 | 491 | .0740 | .0800 | .848 | .784 |
| .002254 | 104.3 | 1,140 | 802 | 489 | .0737 | .0800 | .847 | .780 |
| .002254 | 104.9 | 1,070 | 661 | 390 | .0668 | .0756 | .908 | .802 |
| .002254 | 105.0 | 1,075 | 671 | 390 | .0662 | .0751 | .904 | .797 |
| .002254 | 104.5 | 1,000 | 544 | 297 | .0592 | .0708 | .968 | .796 |
| .002254 | 104.4 | 1,000 | 547 | 304 | .0596 | .0708 | .967 | .814 |
| .002254 | 103.5 | 955 | 454 | 237 | .0509 | .0646 | 1.004 | .791 |
| .002254 | 104.3 | 950 | 453 | 239 | .0519 | .0651 | .917 | .811 |
| .002254 | 103.5 | 890 | 359 | 176 | .0436 | .0588 | 1.077 | .799 |
| .002254 | 103.5 | 900 | 370 | 183 | .0443 | .0592 | 1.065 | .797 |
| .002246 | 103.6 | 830 | 280 | 126 | .0360 | .0529 | 1.156 | .787 |
| .002246 | 103.3 | 775 | 184 | 68 | .0223 | .0399 | 1.234 | .690 |
| .002246 | 103.0 | 700 | 101 | 21 | .0084 | .0269 | 1.362 | .427 |
| .002246 | 103.4 | 630 | 24 | -23 | -.0114 | .0079 | 1.520 | — |
| .002258 | 79.7 | 1,230 | 1,024 | 771 | .0997 | .0877 | .600 | .682 |
| .002258 | 80.1 | 1,230 | 1,015 | 760 | .0983 | .0870 | .603 | .681 |
| .002258 | 75.5 | 1,225 | 1,020 | 789 | .1029 | .0880 | .571 | .667 |
| .002258 | 75.0 | 1,220 | 1,015 | 787 | .1035 | .0883 | .559 | .667 |
| .002261 | 69.9 | 1,230 | 1,020 | 816 | .1054 | .0872 | .526 | .636 |
| .002261 | 69.5 | 1,230 | 1,019 | 811 | .1048 | .0872 | .523 | .629 |
| .002261 | 65.4 | 1,240 | 1,019 | 829 | .1054 | .0858 | .488 | .600 |
| .002261 | 66.0 | 1,240 | 1,020 | 826 | .1050 | .0858 | .485 | .594 |
| .002264 | 60.2 | 1,250 | 1,022 | 831 | .1038 | .0844 | .446 | .549 |
| .002264 | 60.5 | 1,250 | 1,017 | 826 | .1032 | .0840 | .448 | .551 |
| .002264 | 56.9 | 1,270 | 1,022 | 847 | .1025 | .0818 | .415 | .520 |
| .002264 | 55.9 | 1,250 | 1,018 | 844 | .1054 | .0844 | .414 | .517 |
| .002270 | 22.2 | 1,240 | 1,024 | 848 | .1073 | .0858 | .166 | .208 |
| .002270 | 22.6 | 1,245 | 1,023 | 845 | .1061 | .0851 | .168 | .209 |

TABLE III-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER R-10

11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0600 | 0.0292 | 0.236 | 0.202 |
| .15 | .0654 | .0287 | .342 | .305 |
| .20 | .0613 | .0283 | .433 | .406 |
| .25 | .0565 | .0275 | .513 | .512 |
| .30 | .0512 | .0265 | .580 | .620 |
| .35 | .0449 | .0250 | .629 | .732 |
| .40 | .0382 | .0232 | .659 | .849 |
| .45 | .0312 | .0213 | .659 | .972 |
| .50 | .0238 | .0188 | .631 | 1.106 |
| .55 | .0165 | .0162 | .560 | 1.253 |
| .60 | .0090 | .0133 | .407 | 1.425 |

15° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0536 | 0.0411 | 0.203 | 0.189 |
| .15 | .0507 | .0408 | .297 | .284 |
| .20 | .0773 | .0406 | .380 | .379 |
| .25 | .0736 | .0404 | .456 | .475 |
| .30 | .0694 | .0398 | .523 | .571 |
| .35 | .0648 | .0391 | .550 | .669 |
| .40 | .0599 | .0382 | .626 | .767 |
| .45 | .0543 | .0365 | .664 | .870 |
| .50 | .0481 | .0344 | .700 | .980 |
| .55 | .0410 | .0309 | .730 | 1.103 |
| .60 | .0338 | .0276 | .734 | 1.230 |
| .65 | .0267 | .0241 | .720 | 1.369 |
| .70 | .0196 | .0204 | .672 | 1.525 |
| .75 | .0122 | .0168 | .545 | 1.696 |
| .80 | .0050 | .0132 | .303 | 1.900 |

TABLE III-A—Continued

FINAL ADJUSTED COEFFICIENTS—Continued
PROPELLER R-10—Continued

19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0973 | 0.0529 | 0.185 | 0.180 |
| .15 | .0960 | .0527 | .273 | .270 |
| .20 | .0934 | .0531 | .351 | .360 |
| .25 | .0904 | .0533 | .424 | .449 |
| .30 | .0870 | .0534 | .489 | .539 |
| .35 | .0832 | .0533 | .546 | .629 |
| .40 | .0791 | .0530 | .597 | .720 |
| .45 | .0748 | .0526 | .641 | .813 |
| .50 | .0695 | .0511 | .690 | .905 |
| .55 | .0635 | .0490 | .713 | 1.005 |
| .60 | .0573 | .0464 | .742 | 1.108 |
| .65 | .0507 | .0433 | .762 | 1.218 |
| .70 | .0440 | .0397 | .775 | 1.333 |
| .75 | .0375 | .0360 | .780 | 1.455 |
| .80 | .0305 | .0322 | .757 | 1.591 |
| .85 | .0232 | .0280 | .705 | 1.735 |
| .90 | .0160 | .0234 | .615 | 1.906 |
| .95 | .0085 | .0185 | .436 | 2.11 |

23° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.1060 | 0.0654 | 0.162 | 0.172 |
| .15 | .1058 | .0661 | .240 | .258 |
| .20 | .1052 | .0671 | .313 | .343 |
| .25 | .1040 | .0676 | .385 | .420 |
| .30 | .1022 | .0682 | .449 | .513 |
| .35 | .1038 | .0698 | .507 | .597 |
| .40 | .0970 | .0695 | .558 | .681 |
| .45 | .0935 | .0694 | .608 | .766 |
| .50 | .0894 | .0689 | .648 | .852 |
| .55 | .0845 | .0681 | .682 | .941 |
| .60 | .0795 | .0670 | .712 | 1.030 |
| .65 | .0740 | .0654 | .736 | 1.120 |
| .70 | .0682 | .0630 | .758 | 1.218 |
| .75 | .0620 | .0598 | .778 | 1.318 |
| .80 | .0559 | .0565 | .792 | 1.423 |
| .85 | .0492 | .0523 | .800 | 1.534 |
| .90 | .0430 | .0483 | .802 | 1.648 |
| .95 | .0361 | .0438 | .783 | 1.775 |
| 1.00 | .0291 | .0388 | .750 | 1.915 |
| 1.05 | .0220 | .0335 | .690 | 2.07 |
| 1.10 | .0150 | .0279 | .590 | 2.25 |
| 1.15 | .0079 | .0220 | .413 | 2.46 |

27° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.1083 | 0.0572 | 0.124 | 0.163 |
| .15 | .1065 | .0855 | .187 | .245 |
| .20 | .1047 | .0841 | .249 | .329 |
| .25 | .1040 | .0833 | .312 | .410 |
| .30 | .1038 | .0830 | .375 | .494 |
| .35 | .1039 | .0831 | .438 | .576 |
| .40 | .1040 | .0839 | .496 | .658 |
| .45 | .1042 | .0846 | .553 | .738 |
| .50 | .1046 | .0863 | .606 | .817 |
| .55 | .1030 | .0875 | .647 | .895 |
| .60 | .0994 | .0890 | .677 | .975 |
| .65 | .0942 | .0872 | .702 | 1.060 |
| .70 | .0891 | .0863 | .724 | 1.143 |
| .75 | .0840 | .0846 | .745 | 1.230 |
| .80 | .0790 | .0827 | .764 | 1.320 |
| .85 | .0731 | .0796 | .781 | 1.410 |
| .90 | .0668 | .0757 | .793 | 1.506 |
| .95 | .0603 | .0715 | .801 | 1.610 |
| 1.00 | .0534 | .0663 | .805 | 1.720 |
| 1.05 | .0470 | .0615 | .802 | 1.833 |
| 1.10 | .0402 | .0563 | .787 | 1.955 |
| 1.15 | .0341 | .0511 | .766 | 2.08 |
| 1.20 | .0280 | .0457 | .733 | 2.23 |
| 1.25 | .0219 | .0402 | .680 | 2.37 |
| 1.30 | .0158 | .0342 | .601 | 2.56 |
| 1.35 | .0092 | .0280 | .444 | 2.78 |

TABLE IV
OBSERVED DATA
PROPELLER C-6

11° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>V</i> <i>nD</i> | <i>η</i> | |
|----------|--------------------|--------|---------------------|-----------------|----------------------|-----------------------|----------|-------|
| 0.002243 | 84.0 | 1,900 | 454 | 516 | 0.0252 | 0.0164 | 0.409 | 0.705 |
| .002243 | 84.3 | 1,900 | 454 | 516 | 0.0252 | 0.0164 | 0.411 | 0.707 |
| .002235 | 88.9 | 1,900 | 432 | 475 | 0.0260 | 0.0157 | 0.433 | 0.719 |
| .002233 | 88.2 | 1,900 | 434 | 478 | 0.0262 | 0.0157 | 0.430 | 0.716 |
| .002232 | 93.7 | 1,900 | 397 | 415 | 0.0228 | 0.0144 | 0.457 | 0.723 |
| .002232 | 93.8 | 1,900 | 396 | 418 | 0.0229 | 0.0144 | 0.457 | 0.723 |
| .002259 | 103.9 | 1,900 | 273 | 249 | 0.0135 | 0.0098 | 0.506 | 0.698 |
| .002259 | 103.5 | 1,895 | 272 | 240 | 0.0131 | 0.0098 | 0.506 | 0.676 |
| .002251 | 103.4 | 1,800 | 203 | 160 | 0.0097 | 0.0081 | 0.532 | 0.634 |
| .002251 | 102.6 | 1,710 | 140 | 93 | 0.0063 | 0.0062 | 0.556 | 0.559 |
| .002251 | 101.9 | 1,610 | 71 | 34 | 0.0026 | 0.0035 | 0.556 | 0.436 |
| .002251 | 102.4 | 1,515 | 9 | -40 | -0.0034 | 0.0005 | 0.626 | |
| .002230 | 79.3 | 1,900 | 494 | 558 | 0.0323 | 0.0179 | 0.387 | 0.696 |
| .002230 | 79.3 | 1,900 | 497 | 592 | 0.0325 | 0.0180 | 0.387 | 0.697 |
| .002230 | 74.9 | 1,900 | 512 | 634 | 0.0345 | 0.0186 | 0.365 | 0.683 |
| .002230 | 74.9 | 1,900 | 515 | 632 | 0.0347 | 0.0187 | 0.365 | 0.677 |
| .002233 | 69.7 | 1,900 | 558 | 721 | 0.0395 | 0.0203 | 0.340 | 0.662 |
| .002233 | 69.7 | 1,900 | 559 | 723 | 0.0396 | 0.0203 | 0.340 | 0.663 |
| .002233 | 64.8 | 1,900 | 574 | 759 | 0.0416 | 0.0208 | 0.316 | 0.632 |
| .002233 | 64.6 | 1,900 | 574 | 773 | 0.0424 | 0.0208 | 0.315 | 0.642 |
| .002236 | 61.5 | 1,900 | 555 | 800 | 0.0438 | 0.0212 | 0.300 | 0.620 |
| .002236 | 60.2 | 1,900 | 585 | 809 | 0.0443 | 0.0212 | 0.293 | 0.612 |
| .002242 | 25.3 | 1,900 | 732 | 1,230 | 0.0671 | 0.0264 | 0.123 | 0.313 |
| .002242 | 26.6 | 1,900 | 732 | 1,226 | 0.0669 | 0.0264 | 0.130 | 0.328 |

15° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>V</i> <i>nD</i> | <i>η</i> | |
|----------|--------------------|--------|---------------------|-----------------|----------------------|-----------------------|----------|-------|
| 0.002228 | 86.6 | 1,910 | 976 | 1,040 | 0.0565 | 0.0351 | 0.420 | 0.676 |
| .002228 | 87.0 | 1,915 | 979 | 1,036 | 0.0560 | 0.0350 | 0.421 | 0.674 |
| .002228 | 90.8 | 1,900 | 915 | 951 | 0.0523 | 0.0333 | 0.443 | 0.696 |
| .002228 | 90.9 | 1,900 | 913 | 951 | 0.0523 | 0.0333 | 0.443 | 0.696 |
| .002225 | 94.7 | 1,900 | 864 | 878 | 0.0453 | 0.0315 | 0.462 | 0.708 |
| .002225 | 94.7 | 1,900 | 865 | 880 | 0.0454 | 0.0315 | 0.462 | 0.710 |
| .002215 | 103.4 | 1,900 | 776 | 754 | 0.0417 | 0.0284 | 0.504 | 0.740 |
| .002215 | 103.4 | 1,900 | 777 | 754 | 0.0417 | 0.0284 | 0.504 | 0.740 |
| .002215 | 102.7 | 1,820 | 664 | 630 | 0.0380 | 0.0264 | 0.523 | 0.753 |
| .002215 | 102.6 | 1,820 | 665 | 632 | 0.0381 | 0.0266 | 0.522 | 0.748 |
| .002215 | 102.6 | 1,730 | 546 | 497 | 0.0331 | 0.0241 | 0.549 | 0.754 |
| .002215 | 102.4 | 1,635 | 443 | 390 | 0.0290 | 0.0219 | 0.580 | 0.763 |
| .002207 | 102.4 | 1,540 | 349 | 291 | 0.0246 | 0.0195 | 0.616 | 0.777 |
| .002207 | 102.2 | 1,450 | 257 | 196 | 0.0187 | 0.0162 | 0.633 | 0.754 |
| .002207 | 102.0 | 1,365 | 185 | 128 | 0.0188 | 0.0132 | 0.692 | 0.723 |
| .002207 | 102.0 | 1,300 | 121 | 73 | 0.0056 | 0.0095 | 0.727 | 0.663 |
| .002207 | 101.1 | 1,230 | 55 | 18 | 0.0024 | 0.0048 | 0.761 | 0.376 |
| .002207 | 101.1 | 1,170 | 24 | -5 | -0.0007 | 0.0023 | 0.800 | |
| .002216 | 79.3 | 1,900 | 988 | 1,077 | 0.0595 | 0.0362 | 0.389 | 0.640 |
| .002216 | 79.3 | 1,900 | 988 | 1,075 | 0.0594 | 0.0362 | 0.389 | 0.638 |
| .002219 | 75.5 | 1,900 | 988 | 1,100 | 0.0607 | 0.0361 | 0.368 | 0.619 |
| .002219 | 75.5 | 1,895 | 985 | 1,100 | 0.0610 | 0.0362 | 0.369 | 0.622 |
| .002219 | 70.5 | 1,890 | 988 | 1,132 | 0.0632 | 0.0370 | 0.345 | 0.589 |
| .002219 | 70.5 | 1,880 | 988 | 1,132 | 0.0639 | 0.0368 | 0.347 | 0.602 |
| .002222 | 65.9 | 1,865 | 990 | 1,161 | 0.0664 | 0.0375 | 0.327 | 0.579 |
| .002222 | 65.5 | 1,855 | 990 | 1,162 | 0.0672 | 0.0379 | 0.327 | 0.580 |
| .002222 | 60.5 | 1,860 | 990 | 1,191 | 0.0655 | 0.0377 | 0.301 | 0.547 |
| .002222 | 60.7 | 1,850 | 989 | 1,187 | 0.0690 | 0.0381 | 0.304 | 0.561 |
| .002215 | 58.5 | 1,850 | 992 | 1,213 | 0.0708 | 0.0383 | 0.293 | 0.541 |
| .002215 | 57.5 | 1,840 | 989 | 1,211 | 0.0713 | 0.0386 | 0.289 | 0.534 |
| .002224 | 26.4 | 1,795 | 1,000 | 1,293 | 0.0798 | 0.0408 | 0.136 | 0.266 |
| .002224 | 28.2 | 1,790 | 997 | 1,285 | 0.0798 | 0.0409 | 0.146 | 0.284 |

19° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>V</i> <i>nD</i> | <i>η</i> | |
|----------|--------------------|--------|---------------------|-----------------|----------------------|-----------------------|----------|-------|
| 0.002218 | 85.0 | 1,645 | 994 | 917 | 0.0676 | 0.0484 | 0.478 | 0.668 |
| .002218 | 85.2 | 1,650 | 993 | 915 | 0.0670 | 0.0481 | 0.478 | 0.666 |
| .002215 | 89.2 | 1,655 | 995 | 905 | 0.0659 | 0.0480 | 0.499 | 0.685 |
| .002215 | 89.1 | 1,655 | 993 | 904 | 0.0658 | 0.0479 | 0.499 | 0.686 |
| .002215 | 94.3 | 1,675 | 992 | 885 | 0.0629 | 0.0467 | 0.521 | 0.702 |
| .002207 | 94.2 | 1,670 | 991 | 888 | 0.0638 | 0.0470 | 0.522 | 0.708 |
| .002203 | 102.9 | 1,725 | 990 | 859 | 0.0578 | 0.0441 | 0.552 | 0.724 |
| .002203 | 103.1 | 1,720 | 989 | 854 | 0.0579 | 0.0444 | 0.555 | 0.724 |
| .002203 | 103.3 | 1,670 | 914 | 778 | 0.0559 | 0.0435 | 0.573 | 0.736 |
| .002203 | 103.1 | 1,670 | 912 | 779 | 0.0560 | 0.0434 | 0.572 | 0.738 |
| .002203 | 102.9 | 1,600 | 786 | 656 | 0.0514 | 0.0408 | 0.596 | 0.751 |
| .002203 | 102.9 | 1,600 | 786 | 660 | 0.0517 | 0.0408 | 0.596 | 0.755 |
| .002198 | 102.7 | 1,530 | 700 | 570 | 0.0491 | 0.0399 | 0.622 | 0.766 |
| .002198 | 102.6 | 1,535 | 700 | 576 | 0.0492 | 0.0396 | 0.619 | 0.769 |
| .002195 | 102.3 | 1,470 | 589 | 465 | 0.0433 | 0.0363 | 0.644 | 0.763 |
| .002195 | 102.4 | 1,470 | 589 | 465 | 0.0433 | 0.0363 | 0.645 | 0.769 |
| .002195 | 103.0 | 1,400 | 497 | 379 | 0.0389 | 0.0338 | 0.681 | 0.784 |
| .002195 | 103.2 | 1,400 | 497 | 378 | 0.0388 | 0.0338 | 0.683 | 0.784 |
| .002195 | 102.7 | 1,330 | 428 | 315 | 0.0389 | 0.0322 | 0.715 | 0.797 |
| .002195 | 102.7 | 1,330 | 427 | 315 | 0.0389 | 0.0321 | 0.715 | 0.799 |
| .002195 | 102.3 | 1,250 | 337 | 234 | 0.0302 | 0.0358 | 0.758 | 0.795 |
| .002187 | 102.1 | 1,200 | 276 | 181 | 0.0254 | 0.0256 | 0.789 | 0.783 |
| .002187 | 102.1 | 1,120 | 176 | 108 | 0.0174 | 0.0187 | 0.844 | 0.784 |
| .002187 | 102.1 | 1,040 | 90 | 39 | 0.0073 | 0.0111 | 0.909 | 0.596 |
| .002187 | 102.2 | 960 | 9 | -10 | -0.0022 | 0.0013 | 0.986 | |
| .002199 | 79.7 | 1,630 | 995 | 940 | 0.0710 | 0.0498 | 0.453 | 0.646 |
| .002199 | 79.7 | 1,640 | 991 | 935 | 0.0699 | 0.0490 | 0.450 | 0.642 |
| .002199 | 75.1 | 1,620 | 994 | 952 | 0.0730 | 0.0504 | 0.429 | 0.621 |
| .002199 | 75.6 | 1,620 | 990 | 949 | 0.0728 | 0.0503 | 0.432 | 0.625 |
| .002202 | 69.9 | 1,630 | 995 | 964 | 0.0727 | 0.0497 | 0.397 | 0.581 |
| .002202 | 64.4 | 1,620 | 995 | 977 | 0.0748 | 0.0503 | 0.368 | 0.547 |
| .002202 | 64.9 | 1,620 | 994 | 977 | 0.0748 | 0.0503 | 0.371 | 0.552 |
| .002202 | 60.4 | 1,610 | 999 | 998 | 0.0766 | 0.0512 | 0.347 | 0.519 |
| .002202 | 61.0 | 1,605 | 997 | 980 | 0.0762 | 0.0514 | 0.352 | 0.522 |
| .002211 | 24.5 | 1,430 | 991 | 915 | 0.0893 | 0.0642 | 0.159 | 0.221 |
| .002211 | 25.7 | 1,430 | 990 | 914 | 0.0892 | 0.0642 | 0.166 | 0.231 |

TABLE IV—Continued
OBSERVED DATA—Continued
PROPELLER C-6—Continued

23° at 42-inch radius

| <i>P</i> | <i>V</i> m.p.h. | r.p.m. | <i>Q</i> lb.-ft. | <i>T</i> lb. | <i>C_T</i> | <i>V</i> <i>nD</i> | <i>η</i> | |
|----------|--------------------|--------|---------------------|-----------------|----------------------|-----------------------|----------|-------|
| 0.002236 | 85.3 | 1,410 | 987 | 759 | 0.0755 | 0.0650 | 0.560 | 0.661 |
| .002236 | 85.1 | 1,405 | 985 | 756 | 0.0757 | 0.0654 | 0.561 | 0.649 |
| .002236 | 88.7 | 1,425 | 992 | 759 | 0.0739 | 0.0639 | 0.576 | 0.664 |
| .002236 | 88.6 | 1,420 | 993 | 751 | 0.0731 | 0.0648 | 0.610 | 0.694 |
| .002236 | 105.2 | 1,460 | 993 | 726 | 0.0678 | 0.0613 | 0.667 | 0.733 |
| .002236 | 104.4 | 1,390 | 844 | 607 | 0.0625 | 0.0572 | 0.693 | 0.758 |
| .002236 | 104.3 | 1,390 | 846 | 546 | 0.0608 | 0.0582 | 0.724 | 0.780 |
| .002236 | 104.2 | 1,260 | 626 | 428 | 0.0534 | 0.0519 | 0.767 | 0.789 |
| .002236 | 104.4 | 1,260 | 626 | 424 | | | | |

TABLE IV-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER C-6

11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0697 | 0.0269 | 0.259 | 0.206 |
| .15 | .0638 | .0260 | .368 | .311 |
| .20 | .0573 | .0249 | .460 | .418 |
| .25 | .0508 | .0234 | .542 | .530 |
| .30 | .0442 | .0215 | .617 | .646 |
| .35 | .0374 | .0196 | .687 | .769 |
| .40 | .0305 | .0172 | .710 | .904 |
| .45 | .0230 | .0142 | .729 | 1.055 |
| .50 | .0154 | .0109 | .706 | 1.239 |
| .55 | .0079 | .0069 | .630 | 1.490 |

15° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0808 | 0.0408 | 0.198 | 0.190 |
| .15 | .0795 | .0410 | .291 | .284 |
| .20 | .0773 | .0403 | .384 | .380 |
| .25 | .0740 | .0397 | .466 | .476 |
| .30 | .0697 | .0383 | .546 | .575 |
| .35 | .0637 | .0372 | .593 | .675 |
| .40 | .0574 | .0354 | .648 | .780 |
| .45 | .0501 | .0325 | .693 | .893 |
| .50 | .0425 | .0290 | .732 | 1.014 |
| .55 | .0340 | .0247 | .757 | 1.150 |
| .60 | .0265 | .0206 | .770 | 1.305 |
| .65 | .0188 | .0162 | .755 | 1.482 |
| .70 | .0119 | .0118 | .702 | 1.702 |
| .75 | .0043 | .0070 | .462 | 2.02 |

19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0949 | 0.0704 | 0.134 | 0.170 |
| .15 | .0901 | .0652 | .207 | .259 |
| .20 | .0861 | .0607 | .284 | .350 |
| .25 | .0826 | .0560 | .369 | .446 |
| .30 | .0793 | .0533 | .447 | .540 |
| .35 | .0763 | .0514 | .519 | .634 |
| .40 | .0739 | .0504 | .585 | .728 |
| .45 | .0700 | .0493 | .640 | .822 |
| .50 | .0655 | .0479 | .685 | .917 |
| .55 | .0586 | .0446 | .723 | 1.023 |
| .60 | .0518 | .0412 | .751 | 1.138 |
| .65 | .0450 | .0377 | .775 | 1.253 |
| .70 | .0380 | .0334 | .796 | 1.380 |
| .75 | .0309 | .0289 | .802 | 1.520 |
| .80 | .0238 | .0238 | .800 | 1.690 |
| .85 | .0165 | .0181 | .775 | 1.900 |
| .90 | .0091 | .0122 | .673 | 2.18 |
| .95 | .0018 | .0060 | .285 | 2.64 |

23° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.1058 | 0.0980 | 0.108 | 0.159 |
| .15 | .1012 | .0935 | .162 | .241 |
| .20 | .0970 | .0890 | .218 | .324 |
| .25 | .0936 | .0848 | .276 | .410 |
| .30 | .0898 | .0809 | .333 | .497 |
| .35 | .0866 | .0771 | .393 | .585 |
| .40 | .0831 | .0734 | .452 | .675 |
| .45 | .0803 | .0698 | .513 | .766 |
| .50 | .0780 | .0676 | .577 | .858 |
| .55 | .0764 | .0661 | .635 | .946 |
| .60 | .0727 | .0640 | .681 | 1.040 |
| .65 | .0680 | .0612 | .722 | 1.140 |
| .70 | .0621 | .0579 | .755 | 1.239 |
| .75 | .0556 | .0533 | .782 | 1.349 |
| .80 | .0488 | .0489 | .799 | 1.462 |
| .85 | .0422 | .0443 | .810 | 1.585 |
| .90 | .0357 | .0394 | .815 | 1.720 |
| .95 | .0287 | .0387 | .809 | 1.870 |
| 1.00 | .0216 | .0278 | .791 | 2.05 |
| 1.05 | .0154 | .0208 | .749 | 2.29 |
| 1.10 | .0080 | .0135 | .648 | 2.54 |

TABLE IV-A—Continued
FINAL ADJUSTED COEFFICIENTS—Continued
PROPELLER C-6—Continued

27° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0397 | 0.1132 | 0.068 | 0.156 |
| .15 | .1000 | .1128 | .133 | .232 |
| .20 | .1000 | .1123 | .178 | .310 |
| .25 | .0992 | .1118 | .222 | .383 |
| .30 | .0980 | .1100 | .267 | .407 |
| .35 | .0962 | .1076 | .313 | .547 |
| .40 | .0941 | .1049 | .359 | .628 |
| .45 | .0918 | .1019 | .405 | .710 |
| .50 | .0890 | .0981 | .453 | .790 |
| .55 | .0855 | .0939 | .501 | .833 |
| .60 | .0820 | .0891 | .552 | .974 |
| .65 | .0786 | .0851 | .600 | 1.067 |
| .70 | .0757 | .0818 | .648 | 1.155 |
| .75 | .0735 | .0793 | .693 | 1.244 |
| .80 | .0702 | .0764 | .735 | 1.339 |
| .85 | .0658 | .0732 | .765 | 1.433 |
| .90 | .0600 | .0684 | .789 | 1.510 |
| .95 | .0546 | .0645 | .804 | 1.645 |
| 1.00 | .0489 | .0600 | .814 | 1.755 |
| 1.05 | .0428 | .0547 | .820 | 1.880 |
| 1.10 | .0358 | .0477 | .819 | 2.02 |
| 1.15 | .0290 | .0410 | .811 | 2.18 |
| 1.20 | .0218 | .0326 | .794 | 2.38 |
| 1.25 | .0147 | .0245 | .750 | 2.62 |
| 1.30 | .0080 | .0160 | .649 | 2.95 |

TABLE V

OBSERVED DATA

PROPELLER C-8

11° at 42-inch radius

| ρ | V m.p.h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | $\frac{V}{nD}$ | η |
|----------|---------------|----------|--------------|----------|--------|--------|----------------|--------|
| 0.002257 | 85.3 | 1,890 | 523 | 59 | 0.0328 | 0.0100 | 0.418 | 0.722 |
| .002257 | 85.4 | 1,880 | 504 | 574 | .0328 | .0189 | .425 | .732 |
| .002254 | 88.6 | 1,870 | 466 | 515 | .0289 | .0173 | .439 | .734 |
| .002254 | 88.7 | 1,860 | 461 | 510 | .0289 | .0173 | .442 | .739 |
| .002254 | 92.0 | 1,890 | 460 | 499 | .0274 | .0167 | .451 | .740 |
| .002254 | 92.0 | 1,880 | 450 | 495 | .0269 | .0165 | .453 | .738 |
| .002251 | 95.7 | 1,900 | 446 | 474 | .0253 | .0160 | .466 | .749 |
| .002251 | 95.0 | 1,900 | 447 | 474 | .0253 | .0161 | .463 | .743 |
| .002240 | 104.6 | 1,890 | 344 | 329 | .0182 | .0126 | .512 | .740 |
| .002240 | 104.5 | 1,880 | 344 | 328 | .0183 | .0127 | .518 | .743 |
| .002240 | 104.2 | 1,770 | 243 | 214 | .0138 | .0101 | .545 | .727 |
| .002240 | 104.0 | 1,630 | 140 | 100 | .0074 | .0069 | .591 | .637 |
| .002240 | 103.3 | 1,470 | 48 | 9 | .0003 | .0027 | .633 | .179 |
| .002249 | 79.7 | 1,870 | 537 | 635 | .0357 | .0200 | .395 | .706 |
| .002249 | 79.7 | 1,880 | 529 | 627 | .0349 | .0194 | .393 | .705 |
| .002252 | 75.7 | 1,900 | 596 | 733 | .0399 | .0215 | .369 | .685 |
| .002252 | 74.9 | 1,900 | 592 | 733 | .0399 | .0213 | .365 | .684 |
| .002252 | 70.1 | 1,900 | 641 | 820 | .0446 | .0231 | .342 | .660 |
| .002252 | 70.4 | 1,920 | 644 | 823 | .0438 | .0226 | .340 | .659 |
| .002255 | 64.9 | 1,880 | 632 | 838 | .0465 | .0231 | .320 | .644 |
| .002255 | 64.8 | 1,880 | 635 | 842 | .0467 | .0232 | .319 | .642 |
| .002255 | 60.9 | 1,880 | 647 | 885 | .0492 | .0237 | .300 | .623 |
| .002255 | 59.8 | 1,890 | 658 | 897 | .0492 | .0237 | .293 | .608 |
| .002258 | 55.6 | 1,890 | 673 | 948 | .0520 | .0244 | .272 | .580 |
| .002258 | 56.2 | 1,880 | 672 | 947 | .0525 | .0246 | .277 | .591 |
| .002264 | 24.7 | 1,920 | 804 | 1298 | .0687 | .0281 | .119 | .291 |
| .002264 | 26.2 | 1,930 | 802 | 1292 | .0676 | .0278 | .120 | .306 |

TABLE V—Continued
OBSERVED DATA—Continued
PROPELLER C-8—Continued

15° at 42-inch radius

| ρ | V m.p.h. | r. p. m. | Q lb.-ft. | T lb. | C_T | * C_P | $\frac{V}{nD}$ | # |
|----------|-------------|----------|--------------|----------|--------|------------|----------------|-------|
| 0.002255 | 87.6 | 1,880 | 1,006 | 1,054 | 0.0555 | 0.0369 | 0.432 | 0.685 |
| .002255 | 89.6 | 1,900 | 1,005 | 1,042 | .0566 | .0361 | .437 | .685 |
| .002255 | 91.3 | 1,910 | 1,006 | 1,031 | .0554 | .0357 | .445 | .691 |
| .002244 | 92.3 | 1,910 | 1,007 | 1,028 | .0552 | .0357 | .447 | .691 |
| .002244 | 96.8 | 1,940 | 1,004 | 1,007 | .0527 | .0348 | .462 | .699 |
| .002241 | 96.2 | 1,940 | 1,005 | 1,007 | .0527 | .0348 | .459 | .685 |
| .002241 | 104.0 | 1,910 | 884 | 851 | .0460 | .0317 | .504 | .731 |
| .002241 | 104.5 | 1,920 | 884 | 850 | .0454 | .0313 | .504 | .731 |
| .002241 | 105.4 | 1,905 | 863 | 835 | .0454 | .0311 | .512 | .749 |
| .002241 | 104.3 | 1,910 | 865 | 840 | .0454 | .0310 | .506 | .741 |
| .002233 | 103.9 | 1,790 | 638 | 654 | .0404 | .0281 | .537 | .772 |
| .002233 | 103.6 | 1,780 | 679 | 644 | .0402 | .0280 | .539 | .774 |
| .002233 | 103.6 | 1,680 | 527 | 476 | .0334 | .0245 | .571 | .778 |
| .002233 | 103.6 | 1,670 | 518 | 468 | .0332 | .0243 | .574 | .784 |
| .002233 | 103.4 | 1,580 | 422 | 372 | .0294 | .0222 | .606 | .802 |
| .002233 | 103.3 | 1,590 | 417 | 365 | .0256 | .0216 | .602 | .797 |
| .002233 | 103.2 | 1,510 | 321 | 264 | .0229 | .0184 | .633 | .756 |
| .002233 | 103.0 | 1,395 | 219 | 165 | .0168 | .0147 | .684 | .780 |
| .002233 | 102.6 | 1,300 | 139 | 92 | .0108 | .0107 | .731 | .733 |
| .002233 | 102.6 | 1,190 | 38 | 11 | .0015 | .0035 | .798 | .349 |
| .002233 | 105.6 | 1,970 | 998 | 957 | .0458 | .0387 | .496 | .718 |
| .002233 | 104.4 | 1,970 | 998 | 961 | .0490 | .0387 | .491 | .714 |
| .002242 | 83.1 | 1,890 | 1,013 | 1,084 | .0599 | .0370 | .407 | .659 |
| .002242 | 82.5 | 1,900 | 1,008 | 1,085 | .0593 | .0364 | .402 | .655 |
| .002245 | 77.1 | 1,880 | 1,012 | 1,122 | .0626 | .0378 | .380 | .638 |
| .002245 | 77.6 | 1,870 | 1,016 | 1,113 | .0627 | .0378 | .384 | .637 |
| .002245 | 71.6 | 1,860 | 1,017 | 1,154 | .0657 | .0382 | .356 | .613 |
| .002245 | 70.4 | 1,870 | 1,015 | 1,158 | .0651 | .0378 | .349 | .601 |
| .002245 | 65.4 | 1,840 | 1,020 | 1,195 | .0693 | .0392 | .329 | .582 |
| .002245 | 64.8 | 1,850 | 1,020 | 1,200 | .0690 | .0387 | .324 | .578 |
| .002245 | 61.1 | 1,840 | 1,022 | 1,229 | .0713 | .0392 | .308 | .560 |
| .002245 | 61.4 | 1,860 | 1,018 | 1,228 | .0698 | .0383 | .306 | .553 |
| .002251 | 55.7 | 1,830 | 1,022 | 1,254 | .0735 | .0396 | .282 | .523 |
| .002251 | 57.2 | 1,830 | 1,019 | 1,249 | .0732 | .0395 | .289 | .536 |
| .002257 | 26.4 | 1,820 | 1,024 | 1,385 | .0819 | .0400 | .134 | .275 |
| .002257 | 26.8 | 1,830 | 1,020 | 1,380 | .0807 | .0395 | .136 | .277 |

19° at 42-inch radius

| ρ | V m.p.h. | r. p. m. | Q lb.-ft. | T lb. | C_T | * C_P | $\frac{V}{nD}$ | # |
|----------|-------------|----------|--------------|----------|--------|------------|----------------|-------|
| 0.002249 | 87.4 | 1,645 | 1,022 | 949 | 0.0688 | 0.0491 | 0.492 | 0.689 |
| .002249 | 87.4 | 1,640 | 1,021 | 947 | .0692 | .0494 | .493 | .691 |
| .002245 | 91.3 | 1,670 | 1,024 | 936 | .0661 | .0478 | .506 | .700 |
| .002245 | 91.1 | 1,660 | 1,025 | 935 | .0667 | .0488 | .508 | .699 |
| .002245 | 95.2 | 1,670 | 1,028 | 915 | .0646 | .0450 | .528 | .711 |
| .002245 | 96.1 | 1,680 | 1,024 | 914 | .0638 | .0473 | .530 | .715 |
| .002244 | 104.3 | 1,710 | 1,024 | 882 | .0593 | .0459 | .565 | .736 |
| .002244 | 104.3 | 1,700 | 1,023 | 878 | .0601 | .0463 | .568 | .737 |
| .002244 | 104.3 | 1,650 | 929 | 794 | .0577 | .0447 | .585 | .755 |
| .002244 | 104.1 | 1,650 | 931 | 794 | .0577 | .0443 | .584 | .752 |
| .002244 | 103.9 | 1,570 | 778 | 639 | .0512 | .0414 | .613 | .758 |
| .002244 | 104.4 | 1,565 | 776 | 635 | .0513 | .0414 | .618 | .766 |
| .002244 | 103.6 | 1,470 | 632 | 496 | .0454 | .0382 | .633 | .776 |
| .002244 | 103.6 | 1,450 | 604 | 472 | .0445 | .0376 | .662 | .784 |
| .002248 | 102.9 | 1,330 | 465 | 343 | .0383 | .0345 | .716 | .799 |
| .002248 | 104.3 | 1,340 | 462 | 342 | .0378 | .0337 | .721 | .809 |
| .002248 | 103.4 | 1,270 | 352 | 247 | .0304 | .0286 | .754 | .802 |
| .002248 | 103.4 | 1,260 | 351 | 247 | .0309 | .0290 | .760 | .810 |
| .002248 | 103.3 | 1,185 | 262 | 174 | .0246 | .0245 | .807 | .810 |
| .002248 | 103.3 | 1,100 | 156 | 90 | .0148 | .0169 | .870 | .758 |
| .002248 | 102.9 | 1,020 | 82 | 36 | .0069 | .0103 | .934 | .620 |
| .002248 | 102.5 | 960 | 17 | -6 | -.0013 | .0024 | .989 | - |
| .002246 | 80.8 | 1,640 | 1,022 | 976 | .0717 | .0496 | .457 | .661 |
| .002246 | 80.9 | 1,640 | 1,019 | 976 | .0717 | .0495 | .457 | .662 |
| .002246 | 75.8 | 1,630 | 1,024 | 1,004 | .0746 | .0504 | .431 | .638 |
| .002246 | 75.7 | 1,630 | 1,022 | 1,002 | .0745 | .0503 | .430 | .637 |
| .002249 | 69.3 | 1,610 | 1,024 | 1,031 | .0756 | .0516 | .399 | .608 |
| .002249 | 70.1 | 1,610 | 1,025 | 1,030 | .0785 | .0516 | .403 | .613 |
| .002242 | 65.4 | 1,605 | 1,029 | 1,051 | .0803 | .0521 | .377 | .581 |
| .002242 | 64.5 | 1,620 | 1,024 | 1,049 | .0777 | .0503 | .366 | .565 |
| .002242 | 60.7 | 1,600 | 1,029 | 1,062 | .0818 | .0525 | .351 | .547 |
| .002242 | 60.8 | 1,615 | 1,027 | 1,053 | .0799 | .0514 | .349 | .542 |
| .002242 | 56.1 | 1,640 | 1,030 | 1,067 | .0782 | .0500 | .317 | .492 |
| .002242 | 56.7 | 1,630 | 1,028 | 1,064 | .0788 | .0505 | .322 | .502 |
| .002243 | 24.1 | 1,550 | 1,030 | 1,005 | .0823 | .0558 | .144 | .212 |
| .002243 | 25.1 | 1,550 | 1,027 | 1,006 | .0824 | .0556 | .150 | .222 |

TABLE V—Continued
OBSERVED DATA—Continued
PROPELLER C-8—Continued

23° at 42-inch radius

| ρ | V m.p.h. | r. p. m. | Q lb.-ft. | T lb. | C_T | * C_P | $\frac{V}{nD}$ | # |
|----------|-------------|----------|--------------|----------|--------|------------|----------------|-------|
| 0.002242 | 85.3 | 1,440 | 1,013 | 794 | 0.0756 | 0.0636 | 0.549 | 0.653 |
| .002242 | 85.4 | 1,440 | 1,018 | 793 | .0761 | .0636 | .549 | .657 |
| .002242 | 90.2 | 1,430 | 1,013 | 792 | .0761 | .0650 | .554 | .684 |
| .002242 | 89.1 | 1,430 | 1,020 | 785 | .0735 | .0647 | .577 | .670 |
| .002239 | 94.6 | 1,450 | 1,015 | 778 | .0731 | .0634 | .604 | .703 |
| .002239 | 104.9 | 1,470 | 1,016 | 782 | .0690 | .0617 | .661 | .739 |
| .002239 | 105.3 | 1,470 | 1,011 | 749 | .0687 | .0613 | .663 | .743 |
| .002239 | 104.9 | 1,405 | 898 | 651 | .0654 | .0597 | .691 | .757 |
| .002239 | 105.1 | 1,400 | 899 | 651 | .0659 | .0602 | .695 | .760 |
| .002239 | 104.9 | 1,340 | 778 | 546 | .0603 | .0568 | .725 | .770 |
| .002239 | 105.1 | 1,340 | 779 | 547 | .0604 | .0568 | .726 | .772 |
| .002239 | 104.4 | 1,270 | 663 | 450 | .0553 | .0539 | .761 | .781 |
| .002239 | 104.4 | 1,260 | 660 | 450 | .0562 | .0545 | .767 | .791 |
| .002239 | 104.4 | 1,200 | 551 | 358 | .0549 | .0502 | .806 | .792 |
| .002239 | 104.9 | 1,200 | 551 | 356 | .0490 | .0502 | .810 | .791 |
| .002239 | 104.2 | 1,180 | 455 | 286 | .0441 | .0468 | .854 | .810 |
| .002239 | 104.2 | 1,150 | 453 | 284 | .0426 | .0450 | .839 | .794 |
| .002231 | 104.3 | 1,070 | 355 | 213 | .0370 | .0408 | .819 | .819 |
| .002231 | 104.2 | 1,060 | 353 | 212 | .0375 | .0414 | .824 | .824 |
| .002231 | 104.2 | 990 | 250 | 139 | .0325 | .0352 | .935 | .821 |
| .002231 | 103.6 | 930 | 171 | 85 | .0196 | .0260 | 1.092 | .776 |
| .002221 | 103.7 | 800 | 21 | -2 | -.0006 | .0043 | 1.189 | .608 |
| .002230 | 80.9 | 1,425 | 1,009 | 796 | .0777 | .0652 | .526 | .627 |
| .002230 | 80.3 | 1,410 | 1,006 | 791 | .0789 | .0664 | .527 | .626 |
| .002233 | 75.2 | 1,410 | 1,010 | 797 | .0793 | .0685 | .494 | .589 |
| .002233 | 74.3 | 1,405 | 1,008 | 792 | .0794 | .0670 | .490 | .581 |
| .002233 | 69.9 | 1,400 | 1,017 | 795 | .0803 | .0680 | .462 | .516 |
| .002233 | 65.6 | 1,400 | 1,011 | 792 | .0799 | .0677 | .454 | .538 |
| .002236 | 64.6 | 1,390 | 1,020 | 793 | .0812 | .0690 | .430 | .506 |
| .002236 | 64.7 | 1,390 | 1,015 | 789 | .0807 | .0687 | .431 | .506 |
| .002236 | 50.2 | 1,380 | 1,020 | 787 | .0817 | .0700 | .397 | .463 |
| .002236 | 59.2 | 1,390 | 1,015 | 787 | .0808 | .0687 | .394 | .462 |
| .002236 | 55.2 | 1,370 | 1,018 | 789 | .0831 | .0711 | .373 | .436 |
| .002242 | 22.5 | 1,290 | 1,008 | 734 | .0870 | .0794 | .161 | .178 |
| .002242 | 22.7 | 1,285 | 1,004 | 730 | .0872 | .0794 | .164 | .180 |

27° at 42-inch radius

| ρ | V m.p.h. | r. p. m. | Q lb.-ft. | T lb. | C_T | * C_P | $\frac{V}{nD}$ | # |
|----------|-------------|----------|--------------|----------|--------|------------|----------------|-------|
| 0.002234 | 84.9 | 1,210 | 997 | 629 | 0.0809 | 0.0847 | 0.634 | 0.606 |
| .002234 | 85.9 | 1,280 | | | | | | |

TABLE V-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER C-8

11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0700 | 0.0283 | 0.247 | 0.204 |
| .15 | .0654 | .0277 | .354 | .308 |
| .20 | .0603 | .0267 | .452 | .412 |
| .25 | .0547 | .0253 | .540 | .521 |
| .30 | .0488 | .0238 | .615 | .634 |
| .35 | .0420 | .0220 | .668 | .751 |
| .40 | .0350 | .0196 | .714 | .880 |
| .45 | .0278 | .0169 | .740 | 1.018 |
| .50 | .0206 | .0138 | .746 | 1.177 |
| .55 | .0130 | .0100 | .715 | 1.882 |
| .60 | .0056 | .0056 | .600 | 1.695 |

15° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0815 | 0.0304 | 0.207 | 0.191 |
| .15 | .0802 | .0400 | .301 | .285 |
| .20 | .0782 | .0401 | .390 | .380 |
| .25 | .0761 | .0398 | .478 | .476 |
| .30 | .0716 | .0393 | .546 | .574 |
| .35 | .0666 | .0387 | .603 | .670 |
| .40 | .0605 | .0371 | .658 | .772 |
| .45 | .0545 | .0351 | .699 | .879 |
| .50 | .0470 | .0319 | .737 | .995 |
| .55 | .0382 | .0272 | .772 | 1.130 |
| .60 | .0297 | .0225 | .791 | 1.283 |
| .65 | .0218 | .0179 | .790 | 1.452 |
| .70 | .0139 | .0128 | .762 | 1.676 |
| .75 | .0070 | .0077 | .685 | 1.985 |

19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0798 | 0.0558 | 0.143 | 0.178 |
| .15 | .0828 | .0554 | .224 | .268 |
| .20 | .0841 | .0550 | .306 | .357 |
| .25 | .0849 | .0543 | .391 | .448 |
| .30 | .0838 | .0535 | .470 | .540 |
| .35 | .0815 | .0525 | .544 | .632 |
| .40 | .0775 | .0514 | .603 | .724 |
| .45 | .0725 | .0500 | .653 | .818 |
| .50 | .0677 | .0487 | .695 | .915 |
| .55 | .0615 | .0464 | .729 | 1.017 |
| .60 | .0545 | .0432 | .757 | 1.128 |
| .65 | .0472 | .0393 | .780 | 1.240 |
| .70 | .0398 | .0350 | .796 | 1.370 |
| .75 | .0321 | .0298 | .807 | 1.517 |
| .80 | .0251 | .0249 | .804 | 1.676 |
| .85 | .0175 | .0191 | .777 | 1.878 |
| .90 | .0110 | .0139 | .710 | 2.12 |
| .95 | .0027 | .0080 | .440 | 2.49 |

23° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0877 | 0.0822 | 0.106 | 0.165 |
| .15 | .0871 | .0801 | .163 | .248 |
| .20 | .0864 | .0785 | .220 | .333 |
| .25 | .0855 | .0763 | .280 | .419 |
| .30 | .0845 | .0741 | .342 | .505 |
| .35 | .0831 | .0717 | .405 | .593 |
| .40 | .0817 | .0698 | .468 | .682 |
| .45 | .0802 | .0678 | .532 | .771 |
| .50 | .0788 | .0668 | .590 | .860 |
| .55 | .0770 | .0652 | .650 | .950 |
| .60 | .0739 | .0637 | .696 | 1.041 |
| .65 | .0696 | .0619 | .732 | 1.135 |
| .70 | .0640 | .0590 | .760 | 1.237 |
| .75 | .0573 | .0552 | .779 | 1.340 |
| .80 | .0508 | .0512 | .794 | 1.450 |
| .85 | .0441 | .0465 | .805 | 1.570 |
| .90 | .0375 | .0414 | .815 | 1.702 |
| .95 | .0308 | .0357 | .820 | 1.850 |
| 1.00 | .0240 | .0209 | .802 | 2.01 |
| 1.05 | .0172 | .0244 | .742 | 2.20 |
| 1.10 | .0106 | .0185 | .630 | 2.44 |
| 1.15 | .0040 | .0115 | .400 | 2.81 |

TABLE V-A—Continued

FINAL ADJUSTED COEFFICIENTS—Continued
PROPELLER C-8—Continued

27° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_s |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0900 | 0.1125 | 0.088 | 0.155 |
| .15 | .0963 | .1094 | .132 | .234 |
| .20 | .0940 | .1058 | .178 | .314 |
| .25 | .0917 | .1023 | .224 | .394 |
| .30 | .0896 | .0992 | .271 | .476 |
| .35 | .0875 | .0962 | .318 | .560 |
| .40 | .0855 | .0945 | .362 | .642 |
| .45 | .0838 | .0918 | .411 | .726 |
| .50 | .0819 | .0890 | .460 | .811 |
| .55 | .0805 | .0865 | .512 | .899 |
| .60 | .0800 | .0850 | .565 | .984 |
| .65 | .0795 | .0837 | .617 | 1.069 |
| .70 | .0779 | .0820 | .665 | 1.153 |
| .75 | .0752 | .0797 | .707 | 1.244 |
| .80 | .0711 | .0768 | .743 | 1.340 |
| .85 | .0660 | .0729 | .770 | 1.437 |
| .90 | .0602 | .0688 | .788 | 1.539 |
| .95 | .0544 | .0642 | .805 | 1.647 |
| 1.00 | .0482 | .0591 | .815 | 1.760 |
| 1.05 | .0420 | .0535 | .824 | 1.858 |
| 1.10 | .0355 | .0473 | .825 | 2.03 |
| 1.15 | .0290 | .0405 | .822 | 2.18 |
| 1.20 | .0222 | .0333 | .800 | 2.36 |
| 1.25 | .0155 | .0254 | .762 | 2.61 |
| 1.30 | .0085 | .0177 | .624 | 2.91 |

TABLE VI

OBSERVED DATA
PROPELLER C-10

11° at 42-inch radius

| P | V m. p. h. | r. p. m. | Q lb.-ft. | T lb. | C_T | C_P | V $\frac{nD}{nD}$ | * |
|----------|-----------------|----------|----------------|------------|--------|--------|------------------------|-------|
| 0.002233 | 84.9 | 1,870 | 583 | 652 | 0.0364 | 0.0216 | 0.420 | 0.708 |
| .002233 | 88.4 | 1,880 | 583 | 644 | .0356 | .0218 | .426 | .712 |
| .002230 | 92.4 | 1,890 | 555 | 589 | .0323 | .0201 | .453 | .728 |
| .002232 | 92.1 | 1,890 | 580 | 600 | .0330 | .0204 | .451 | .730 |
| .002249 | 95.2 | 1,880 | 529 | 551 | .0307 | .0194 | .469 | .741 |
| .002252 | 95.0 | 1,890 | 530 | 552 | .0304 | .0193 | .465 | .724 |
| .002246 | 105.1 | 1,870 | 415 | 398 | .0224 | .0154 | .520 | .755 |
| .002246 | 105.1 | 1,870 | 407 | 392 | .0220 | .0152 | .520 | .755 |
| .002241 | 103.9 | 1,790 | 338 | 308 | .0180 | .0137 | .537 | .741 |
| .002241 | 103.5 | 1,700 | 247 | 206 | .0141 | .0112 | .564 | .711 |
| .002241 | 103.7 | 1,580 | 152 | 109 | .0086 | .0079 | .608 | .657 |
| .002241 | 103.0 | 1,430 | 74 | 35 | .0031 | .0043 | .610 | .459 |
| .002250 | 83.0 | 1,910 | 636 | 726 | .0391 | .0225 | .402 | .695 |
| .002250 | 82.2 | 1,905 | 637 | 732 | .0390 | .0228 | .400 | .695 |
| .002250 | 76.6 | 1,890 | 650 | 773 | .0423 | .0236 | .376 | .675 |
| .002253 | 75.8 | 1,900 | 656 | 783 | .0425 | .0235 | .369 | .668 |
| .002253 | 71.3 | 1,905 | 708 | 871 | .0471 | .0233 | .347 | .646 |
| .002253 | 69.7 | 1,910 | 710 | 885 | .0478 | .0232 | .338 | .633 |
| .002236 | 66.0 | 1,880 | 697 | 892 | .0495 | .0230 | .325 | .629 |
| .002256 | 65.0 | 1,890 | 701 | 900 | .0494 | .0234 | .318 | .619 |
| .002256 | 59.8 | 1,900 | 731 | 967 | .0825 | .0263 | .291 | .581 |
| .002236 | 60.3 | 1,890 | 731 | 968 | .0831 | .0265 | .295 | .591 |
| .002256 | 57.5 | 1,910 | 768 | 1,026 | .0561 | .0272 | .279 | .565 |
| .002259 | 56.0 | 1,910 | 769 | 1,039 | .0557 | .0273 | .272 | .555 |
| .002262 | 24.6 | 1,910 | 815 | 1,274 | .0682 | .0289 | .119 | .282 |
| .002262 | 26.5 | 1,900 | 820 | 1,272 | .0688 | .0294 | .129 | .302 |

TABLE VI—Continued

OBSERVED DATA—Continued
PROPELLER C-10—Continued

15° at 42-inch radius

| <i>P</i> | <i>V</i> m. p. h. | r. p. m. | <i>Q</i> lb. ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> / <i>nD</i> | <i>η</i> |
|----------|----------------------|----------|---------------------|-----------------|----------------------|----------------------|----------------------|----------|
| 0.002212 | 89.2 | 1,885 | 1,001 | 1,008 | 0.0567 | 0.0372 | 0.433 | 0.668 |
| .002212 | 89.6 | 1,885 | 1,002 | 1,007 | .0566 | .0373 | .440 | .667 |
| .002209 | 92.4 | 1,885 | 1,004 | 998 | .0562 | .0375 | .454 | .681 |
| .002209 | 93.2 | 1,880 | 1,005 | 988 | .0559 | .0373 | .457 | .685 |
| .002209 | 96.9 | 1,900 | 1,003 | 976 | .0541 | .0368 | .472 | .695 |
| .002209 | 96.9 | 1,905 | 1,003 | 976 | .0538 | .0366 | .471 | .692 |
| .002196 | 106.7 | 1,950 | 998 | 925 | .0490 | .0350 | .507 | .709 |
| .002196 | 106.7 | 1,950 | 995 | 917 | .0486 | .0349 | .507 | .706 |
| .002196 | 106.1 | 1,880 | 878 | 817 | .0466 | .0330 | .523 | .738 |
| .002196 | 106.1 | 1,880 | 874 | 809 | .0461 | .0329 | .523 | .733 |
| .002196 | 105.6 | 1,800 | 721 | 672 | .0418 | .0296 | .543 | .767 |
| .002196 | 105.3 | 1,790 | 718 | 660 | .0415 | .0293 | .545 | .759 |
| .002188 | 105.3 | 1,710 | 615 | 550 | .0380 | .0281 | .570 | .771 |
| .002188 | 105.3 | 1,710 | 611 | 542 | .0375 | .0279 | .570 | .766 |
| .002188 | 105.3 | 1,640 | 518 | 452 | .0339 | .0257 | .595 | .785 |
| .002188 | 105.3 | 1,640 | 518 | 446 | .0335 | .0257 | .595 | .776 |
| .002188 | 104.9 | 1,570 | 448 | 374 | .0306 | .0242 | .619 | .782 |
| .002188 | 105.1 | 1,570 | 444 | 373 | .0305 | .0241 | .620 | .785 |
| .002221 | 103.6 | 1,470 | 326 | 263 | .0283 | .0198 | .633 | .767 |
| .002221 | 103.3 | 1,330 | 254 | 185 | .0191 | .0173 | .638 | .758 |
| .002221 | 103.1 | 1,290 | 153 | 96 | .0115 | .0121 | .740 | .703 |
| .002221 | 103.1 | 1,180 | 78 | 33 | .0049 | .0072 | .802 | .544 |
| .002221 | 102.8 | 1,105 | 4 | -18 | — | .0029 | .0004 | .861 |
| .002200 | 80.7 | 1,870 | 1,004 | 1,061 | .0619 | .0382 | .400 | .639 |
| .002200 | 80.5 | 1,870 | 1,003 | 1,059 | .0609 | .0381 | .399 | .638 |
| .002200 | 75.6 | 1,565 | 1,009 | 1,090 | .0629 | .0386 | .375 | .611 |
| .002200 | 75.8 | 1,860 | 1,007 | 1,091 | .0634 | .0387 | .377 | .618 |
| .002203 | 69.8 | 1,850 | 1,012 | 1,124 | .0659 | .0392 | .349 | .587 |
| .002203 | 69.8 | 1,850 | 1,009 | 1,130 | .0653 | .0391 | .349 | .592 |
| .002203 | 64.4 | 1,840 | 1,013 | 1,159 | .0653 | .0397 | .324 | .560 |
| .002203 | 64.8 | 1,840 | 1,009 | 1,160 | .0656 | .0398 | .326 | .565 |
| .002199 | 61.4 | 1,845 | 1,012 | 1,182 | .0699 | .0366 | .308 | .544 |
| .002199 | 62.0 | 1,845 | 1,009 | 1,176 | .0695 | .0393 | .311 | .547 |
| .002199 | 58.0 | 1,840 | 1,013 | 1,202 | .0713 | .0398 | .292 | .523 |
| .002199 | 57.5 | 1,840 | 1,012 | 1,201 | .0712 | .0398 | .289 | .517 |
| .002208 | 26.9 | 1,840 | 1,012 | 1,355 | .0800 | .0396 | .135 | .274 |
| .002208 | 26.9 | 1,840 | 1,008 | 1,344 | .0794 | .0394 | .135 | .273 |

19° at 42-inch radius

| <i>P</i> | <i>V</i> m. p. h. | r. p. m. | <i>Q</i> lb. ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> / <i>nD</i> | <i>η</i> |
|----------|----------------------|----------|---------------------|-----------------|----------------------|----------------------|----------------------|----------|
| 0.002194 | 86.4 | 1,605 | 1,012 | 929 | 0.0726 | 0.0522 | 0.498 | 0.693 |
| .002194 | 86.9 | 1,620 | 1,012 | 926 | .0712 | .0514 | .497 | .683 |
| .002194 | 91.6 | 1,630 | 1,012 | 908 | .0688 | .0507 | .520 | .706 |
| .002194 | 91.7 | 1,630 | 1,009 | 904 | .0655 | .0506 | .520 | .704 |
| .002191 | 95.6 | 1,645 | 1,009 | 889 | .0662 | .0497 | .538 | .717 |
| .002191 | 95.9 | 1,645 | 1,008 | 887 | .0660 | .0497 | .540 | .717 |
| .002181 | 104.5 | 1,665 | 1,013 | 849 | .0621 | .0493 | .581 | .738 |
| .002181 | 105.1 | 1,670 | 1,006 | 848 | .0616 | .0483 | .583 | .743 |
| .002181 | 104.7 | 1,600 | 909 | 751 | .0595 | .0478 | .606 | .738 |
| .002181 | 104.7 | 1,610 | 906 | 750 | .0587 | .0469 | .602 | .734 |
| .002181 | 104.0 | 1,530 | 784 | 635 | .0550 | .0450 | .629 | .759 |
| .002181 | 104.0 | 1,530 | 788 | 631 | .0547 | .0450 | .629 | .765 |
| .002174 | 103.3 | 1,440 | 635 | 494 | .0455 | .0411 | .664 | .751 |
| .002174 | 103.5 | 1,440 | 635 | 493 | .0484 | .0411 | .666 | .785 |
| .002174 | 103.3 | 1,340 | 504 | 382 | .0432 | .0377 | .714 | .818 |
| .002174 | 102.9 | 1,340 | 512 | 378 | .0428 | .0383 | .711 | .795 |
| .002174 | 102.6 | 1,265 | 406 | 286 | .0383 | .0342 | .751 | .797 |
| .002174 | 102.9 | 1,260 | 405 | 286 | .0366 | .0343 | .756 | .807 |
| .002174 | 102.5 | 1,175 | 296 | 193 | .0284 | .0289 | .508 | .794 |
| .002174 | 102.6 | 1,170 | 297 | 194 | .0288 | .0292 | .812 | .801 |
| .002174 | 102.0 | 1,096 | 192 | 115 | .0197 | .0213 | .867 | .783 |
| .002174 | 101.7 | 1,000 | 94 | 41 | .0063 | .0126 | .942 | .622 |
| .002174 | 102.3 | 930 | 20 | -2 | — | .0005 | .0031 | 1.019 |
| .002183 | 82.0 | 1,600 | 1,012 | 945 | .0750 | .0528 | .475 | .675 |
| .002183 | 82.0 | 1,610 | 1,008 | 945 | .0741 | .0519 | .472 | .674 |
| .002185 | 76.6 | 1,610 | 1,012 | 950 | .0765 | .0520 | .441 | .649 |
| .002185 | 76.8 | 1,610 | 1,007 | 974 | .0760 | .0519 | .442 | .647 |
| .002185 | 70.8 | 1,600 | 1,012 | 1,001 | .0791 | .0528 | .410 | .614 |
| .002186 | 71.2 | 1,605 | 1,008 | 1,005 | .0758 | .0523 | .411 | .619 |
| .002189 | 65.2 | 1,600 | 1,010 | 1,047 | .0826 | .0627 | .377 | .591 |
| .002189 | 64.2 | 1,600 | 1,009 | 1,040 | .0820 | .0625 | .371 | .580 |
| .002189 | 59.7 | 1,600 | 1,013 | 1,063 | .0838 | .0529 | .345 | .546 |
| .002189 | 60.0 | 1,600 | 1,008 | 1,063 | .0833 | .0525 | .347 | .554 |
| .002192 | 56.4 | 1,592 | 1,010 | 1,088 | .0867 | .0533 | .328 | .534 |
| .002192 | 57.3 | 1,600 | 1,008 | 1,075 | .0846 | .0525 | .332 | .535 |
| .002195 | 25.5 | 1,600 | 1,012 | 1,168 | .0919 | .0526 | .148 | .258 |
| .002195 | 25.9 | 1,610 | 1,009 | 1,153 | .0897 | .0518 | .149 | .258 |

TABLE VI—Continued

OBSERVED DATA—Continued
PROPELLER C-10—Continued

23° at 42-inch radius

| <i>P</i> | <i>V</i> m. p. h. | r. p. m. | <i>Q</i> lb. ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> / <i>nD</i> | <i>η</i> |
|----------|----------------------|----------|---------------------|-----------------|----------------------|----------------------|----------------------|----------|
| 0.002187 | 86.8 | 1,420 | 1,003 | 811 | 0.0814 | 0.0665 | 0.566 | 0.624 |
| .002187 | 87.1 | 1,420 | 1,001 | 811 | .0814 | .0665 | .568 | .626 |
| .002187 | 90.4 | 1,430 | 1,004 | 802 | .0793 | .0658 | .585 | .703 |
| .002187 | 90.3 | 1,420 | 1,002 | 794 | .0795 | .0665 | .589 | .704 |
| .002177 | 94.4 | 1,440 | 1,002 | 779 | .0764 | .0643 | .607 | .716 |
| .002177 | 95.2 | 1,430 | 1,003 | 779 | .0774 | .0657 | .616 | .726 |
| .002174 | 105.0 | 1,450 | 1,002 | 740 | .0716 | .0641 | .671 | .750 |
| .002174 | 104.4 | 1,440 | 1,002 | 736 | .0723 | .0647 | .671 | .748 |
| .002174 | 104.2 | 1,390 | 897 | 645 | .0679 | .0625 | .694 | .754 |
| .002174 | 104.2 | 1,380 | 895 | 651 | .0695 | .0631 | .699 | .770 |
| .002167 | 104.3 | 1,325 | 785 | 551 | .0640 | .0602 | .729 | .775 |
| .002167 | 104.1 | 1,340 | 785 | 552 | .0627 | .0638 | .719 | .766 |
| .002167 | 104.3 | 1,290 | 712 | 485 | .0600 | .0577 | .749 | .779 |
| .002167 | 104.3 | 1,280 | 712 | 485 | .0604 | .0584 | .755 | .778 |
| .002167 | 103.9 | 1,220 | 607 | 399 | .0547 | .0550 | .789 | .785 |
| .002167 | 103.6 | 1,140 | 509 | 322 | .0505 | .0527 | .842 | .805 |
| .002160 | 102.6 | 860 | 120 | 52 | .0144 | .0220 | 1.105 | .722 |
| .002160 | 102.6 | 860 | 800 | 9 | .0029 | .0080 | 1.188 | .426 |
| .002169 | 79.9 | 1,425 | 993 | 533 | .0536 | .0661 | .519 | .657 |
| .002169 | 79.5 | 1,425 | 989 | 531 | .0534 | .0656 | .517 | .657 |
| .002172 | 74.7 | 1,430 | 993 | 551 | .0645 | .0656 | .484 | .623 |
| .002172 | 74.5 | 1,420 | 989 | 546 | .0533 | .0659 | .486 | .594 |
| .002172 | 69.9 | 1,430 | 989 | 562 | .0536 | .0651 | .453 | .596 |
| .002175 | 64.0 | 1,430 | 991 | 575 | .0567 | .0652 | .414 | .551 |
| .002175 | 64.9 | 1,425 | 987 | 571 | .0572 | .0654 | .422 | .563 |
| .002175 | 59.7 | 1,415 | 993 | 578 | .0592 | .0668 | .391 | .525 |
| .002175 | 60.2 | 1,410 | 990 | 572 | .0591 | .0670 | .395 | .525 |
| .002178 | 56.2 | 1,410 | 993 | 560 | .0583 | .0678 | .370 | .454 |
| .002178 | 56.2 | 1,405 | 992 | 559 | .0583 | .0677 | .370 | .452 |
| .002184 | 22.6 | 1,330 | 993 | 766 | .0576 | .0754 | .157 | .183 |
| .002184 | 23.4 | 1,320 | 991 | 764 | .0588 | .0761 | .164 | .192 |

| <i>P</i> | <i>V</i> m. p. h. | r. p. m. | <i>Q</i> lb. ft. | <i>T</i> lb. | <i>C_T</i> | <i>C_P</i> | <i>V</i> / <i>nD</i> | <i>η</i> |
|----------|----------------------|----------|---------------------|-----------------|----------------------|----------------------|----------------------|----------|
| 0.002207 | 86.6 | 1,250 | 998 | 684 | 0.0877 | 0.0844 | 0.642 | 0.667 |
| .002207 | 86.7 | 1,260</ | | | | | | |

TABLE VI-A
FINAL ADJUSTED COEFFICIENTS
PROPELLER C-10

 11° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0700 | 0.0295 | 0.237 | 0.202 |
| .15 | .0670 | .0290 | .346 | .304 |
| .20 | .0630 | .0285 | .441 | .407 |
| .25 | .0580 | .0280 | .518 | .512 |
| .30 | .0525 | .0265 | .594 | .620 |
| .35 | .0460 | .0248 | .649 | .733 |
| .40 | .0395 | .0226 | .699 | .855 |
| .45 | .0330 | .0205 | .724 | .978 |
| .50 | .0255 | .0170 | .750 | 1.129 |
| .55 | .0170 | .0129 | .724 | 1.313 |
| .60 | .0095 | .0085 | .670 | 1.558 |

 15° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0818 | 0.0400 | 0.204 | 0.190 |
| .15 | .0795 | .0400 | .298 | .285 |
| .20 | .0770 | .0400 | .384 | .380 |
| .25 | .0742 | .0400 | .464 | .475 |
| .30 | .0702 | .0397 | .530 | .572 |
| .35 | .0660 | .0392 | .589 | .670 |
| .40 | .0612 | .0384 | .638 | .768 |
| .45 | .0560 | .0370 | .681 | .870 |
| .50 | .0500 | .0348 | .718 | .978 |
| .55 | .0416 | .0302 | .758 | 1.107 |
| .60 | .0330 | .0265 | .776 | 1.250 |
| .65 | .0248 | .0208 | .775 | 1.410 |
| .70 | .0175 | .0164 | .745 | 1.590 |
| .75 | .0105 | .0115 | .684 | 1.835 |

 19° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0910 | 0.0520 | 0.174 | 0.181 |
| .15 | .0910 | .0521 | .262 | .271 |
| .20 | .0900 | .0523 | .344 | .361 |
| .25 | .0884 | .0525 | .421 | .451 |
| .30 | .0860 | .0526 | .490 | .542 |
| .35 | .0832 | .0527 | .552 | .630 |
| .40 | .0801 | .0528 | .606 | .720 |
| .45 | .0757 | .0528 | .651 | .813 |
| .50 | .0708 | .0518 | .690 | .905 |
| .55 | .0655 | .0498 | .724 | 1.002 |
| .60 | .0591 | .0472 | .751 | 1.108 |
| .65 | .0520 | .0436 | .775 | 1.219 |
| .70 | .0450 | .0394 | .790 | 1.337 |
| .75 | .0368 | .0345 | .798 | 1.470 |
| .80 | .0294 | .0294 | .801 | 1.616 |
| .85 | .0224 | .0238 | .789 | 1.794 |

TABLE VI-A—Continued
FINAL ADJUSTED COEFFICIENTS—Continued
PROPELLER C-10—Continued

 23° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0870 | 0.0709 | 0.113 | 0.167 |
| .15 | .0882 | .0755 | .175 | .251 |
| .20 | .0889 | .0740 | .240 | .337 |
| .25 | .0890 | .0720 | .309 | .423 |
| .30 | .0890 | .0695 | .390 | .511 |
| .35 | .0886 | .0676 | .459 | .600 |
| .40 | .0880 | .0663 | .531 | .688 |
| .45 | .0864 | .0656 | .592 | .775 |
| .50 | .0845 | .0658 | .641 | .862 |
| .55 | .0817 | .0659 | .682 | .948 |
| .60 | .0780 | .0656 | .713 | 1.035 |
| .65 | .0732 | .0648 | .737 | 1.124 |
| .70 | .0672 | .0620 | .760 | 1.222 |
| .75 | .0610 | .0588 | .779 | 1.322 |
| .80 | .0547 | .0551 | .794 | 1.429 |
| .85 | .0483 | .0510 | .805 | 1.549 |
| .90 | .0416 | .0461 | .812 | 1.668 |
| .95 | .0349 | .0408 | .812 | 1.802 |
| 1.00 | .0280 | .0349 | .802 | 1.957 |
| 1.05 | .0211 | .0284 | .781 | 2.14 |
| 1.10 | .0142 | .0214 | .730 | 2.37 |
| 1.15 | .0072 | .0140 | .581 | 2.70 |

 27° at 42-inch radius

| $\frac{V}{nD}$ | C_T | C_P | η | C_S |
|----------------|--------|--------|--------|-------|
| 0.10 | 0.0350 | 0.1055 | 0.090 | 0.157 |
| .15 | .0933 | .1029 | .136 | .236 |
| .20 | .0925 | .100 | .185 | .317 |
| .25 | .0915 | .0972 | .235 | .399 |
| .30 | .0908 | .0950 | .287 | .481 |
| .35 | .0898 | .0922 | .340 | .565 |
| .40 | .0888 | .0900 | .395 | .647 |
| .45 | .0882 | .0880 | .451 | .733 |
| .50 | .0880 | .0868 | .509 | .816 |
| .55 | .0877 | .0852 | .566 | .902 |
| .60 | .0870 | .0839 | .622 | .956 |
| .65 | .0858 | .0835 | .668 | 1.069 |
| .70 | .0830 | .0822 | .706 | 1.154 |
| .75 | .0800 | .0814 | .737 | 1.240 |
| .80 | .0752 | .0791 | .760 | 1.330 |
| .85 | .0703 | .0766 | .780 | 1.423 |
| .90 | .0651 | .0739 | .793 | 1.517 |
| .95 | .0591 | .0700 | .802 | 1.614 |
| 1.00 | .0530 | .0652 | .813 | 1.723 |
| 1.05 | .0467 | .0597 | .822 | 1.816 |
| 1.10 | .0402 | .0536 | .825 | 1.978 |
| 1.15 | .0337 | .0469 | .826 | 2.12 |
| 1.20 | .0270 | .0398 | .813 | 2.29 |
| 1.25 | .0201 | .0321 | .783 | 2.49 |
| 1.30 | .0130 | .0240 | .704 | 2.74 |
| 1.35 | .0056 | .0157 | .482 | 3.10 |